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THE PELAGIC COPEPODS OF THE IZU REGION, MIDDLE JAPAN
SYSTEMATIC ACCOUNT VIII¹⁾

FAMILY SCOLECITHRICIDAE (PART 2)

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With 25 Text-figures

Genus *Scolecithrix* BRADY

The genus contained once a large number of species. Sars divided the group into two genera, *Scolecithrix* and *Scolecithricella*. In the former the 5th pair of legs entirely absent in the female. From Japanese waters the genus is represented by two species, *Scolecithrix danae* (Lubbock) and *S. nicobarica* Sewell.

Scolecithrix danae (Lubbock)

Scolecithrix danae, GIESBRECHT, 1892, p. 256, pl. 13, figs. 4, 9, 14, 17; ESTERLY, 1905, p. 164; A. SCOTT, 1909, p. 88; WILSON, 1932, p. 82; MORI, 1937, p. 53, pl. 27, figd. 1-8; FARRAN, 1936, p. 95; WILSON, 1950, p. 335; TANAKA, 1953, p. 133.

Female. Length, 2.1-2.2 mm. The abdomen is contained 4.5 times in the length of the cephalothorax. The body robust. The head fused with the 1st thoracic segment. The last two thoracic segments are separate.

The genital segment has a shovel-like process below the genital orifice.

The 1st antenna 19-jointed, extends to the distal end of the thoracic segment.

The 1st maxilla has the following numbers of setae on the various parts: 9 setae on the outer lobe, 5 setae on the exopod, 6 setae on the endopod, 4 setae on the 2nd basal segment, 3 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe, 10 setae on the 1st inner lobe.

The 1st leg has an outer edge spine on the 1st joint of the exopod.

The 5th pair of legs absent.

Male. Length, 2.1 mm. The abdomen is contained 3.2 times in the length of the cephalothorax. The anal segment very short. The 1st antenna extends to the end of the thoracic segment.

1) Part VII appeared in this journal, Vol. IX, No. 1, pp. 139-190 (1961).

In the 5th pair of legs the terminal segment of the right leg is very short.

Occurrence. The species is common in the surface layer.

Distribution. The species is widely distributed in the tropical and subtropical areas of the oceans.

Scolecithrix nicobarica SEWELL

(Fig. 127, a-i)

Scolecithrix nicobarica, SEWELL, 1929, p. 209, text-fig. 78, a-g; FARRAN, 1936, p. 97, text-fig. 10; TANAKA, 1953, p. 133.

Female. Length, 1.446 mm: cephalothorax, 1.180 mm; abdomen, 0.286 mm. The abdomen is contained 4.1 times in the length of the cephalothorax. The

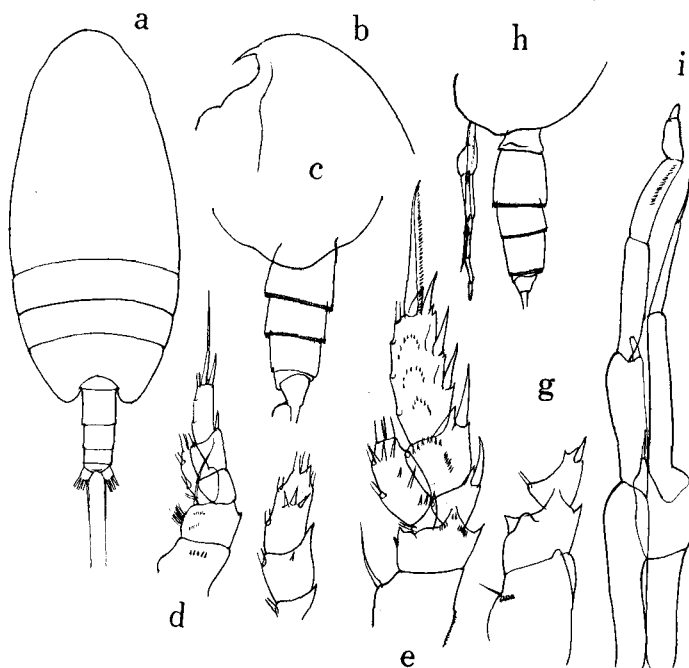


Fig. 127. *Scolecithrix nicobarica* SEWELL.

Female: a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, 1st leg; e, 2nd leg; f, endopod of 3rd leg; g, basal segments of 4th leg. Male: h, last thoracic segment and abdomen, lateral aspect; i, 5th pair of legs.

cephalothorax ovate in outline. The head fused with the 1st thoracic segment. The last two thoracic segments are fused; the line of fusion between the 4th and 5th thoracic segments was not observed. The last thoracic segment slightly

indented on the posterior lateral margin. (fig. a). The rostrum is composed of 2 strong spines terminating into fine point. (fig. b).

The abdomen 4-segmented; the segments and furca in the proportional lengths, $43:18:18:9:12=100$. The genital segment not swollen below. The anal segment short. The furcal rami as long as wide (fig. a, c).

The 1st antenna 20-jointed, extends to the posterior margin of the 2nd abdominal segment. The segments 1-2, 8-9-10, and 24-25 are fused; the segments 12 and 13 are partially fused.

The 2nd antenna has the exopod slightly longer than the endopod (7:5). The 1st maxilla has 7 long and 2 short setae on the outer lobe, 7 setae on the exopod, 6 setae on the endopod, 3 setae on the 2nd basal, 3 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe, 9 setae on the 1st inner lobe. The 2nd maxilla has 3 long vermiform and 5 bud-like sensory filaments on the endopod. The maxilliped has the 1st basal segment slightly shorter than the 2nd.

The 1st leg has 3-jointed exopod and 1-jointed endopod; the 1st segment of the exopod has no outer marginal spine; the 1st basal segment has a row of spinules (fig. d). The 2nd leg has 3-jointed exopod and 2-jointed endopod; the 2nd and 3rd segments of the exopod and the 2nd segment of the endopod are furnished with rows of spinules on the posterior surface; the 1st basal segment is very finely denticulated on the proximal half of the outer margin; the 2nd basal has a small spine on the inner margin about the middle, (fig. e). The 3rd and 4th legs have each 3-jointed exopod and endopod. In the 4th leg the 1st basal segment is finely serrated on the outer distal margin; there is a small protuberance near the outer distal margin; the segment has a transverse row of spinules at the base of the small inner marginal seta on the posterior surface. The 2nd basal has a rounded process near the inner distal margin where the endopod articulates with the 2nd basal (fig. g). The endopod of the 3rd leg as figured (fig. f).

The 5th pair of legs absent.

Male. Length, 1.50 mm cephalothorax, 1.12 mm; abdomen, 0.38 mm. General appearance as in the female. The abdominal segments and furca are in the proportional lengths, $17:33:17:21:5:7=100$. The furcal rami as long as wide.

The 1st antenna 18-jointed on the left side, reaches back to the distal end of the 2nd abdominal segment; the segments 8-13, 20-21, and 24-25 are fused; the segments 12 and 13 are fused on the posterior margin.

The 2nd antenna has the exopod slightly longer than the endopod. The mandible robust. The 1st maxilla has 7+2 setae on the outer lobe. The 2nd maxilla has only long vermiform filaments on the endopod. The maxilliped robust.

The 1st to 4th legs as those of the female.

The 5th pair of legs reaches back to the furca; the endopod of the left leg

very small; the exopod 3-jointed; the distal segment of the exopod carries a thin lamellous plate on the apex. The endopod of the right leg triangular in shape, carries a slender spine at the apex; the distal segment of the exopod slender (fig. k, i).

Remarks. The specimen, though it is slightly larger in size than that recorded by SEWELL and differs slightly in the structure of the 2nd antenna from that described by SEWELL, agrees fairly well with SEWELL's specimen of *S. nicobarica*. FARRAN included the present species in the genus *Scolecithricella*.

Occurrence. One female from Sagami, and one male from Suruga in the hauls from deep water.

Distribution. The species has been recorded from the Indian Seas and Great Barrier Reef.

Genus *Scolecithricella* Sars

SARS (1903) subdivided the genus *Scolecithrix* into *Scolecithrix* and *Scolecithricella* in which a 5th pair of female is present in the latter. He (1925) further divided *Scolecithricella* into *Amallothrix* and *Scolecithricella*. He defined the distinguishing characters of the two groups: 1), the presence of button-like sensory appendages on the terminal segments of the 2nd maxilla in *Amallothrix*; and only vermiform sensory appendages on these segments in *Scolecithricella*; 2), a 5th pair of legs of the female is cylindrical in *Amallothrix*, and plate-like in *Scolecithricella*. However, there are a number of species in *Scolecithricella* (sensu stricto) which have only worm-like sensory appendages on the distal segments of the 2nd maxilla, and a 5th pair of legs is of plate-like in structure, but in a certain number of the species of *Scolecithricella* the sensory appendages are composed of, beside worm-like filaments, bud-like ones with a swelling at the tip, and the 5th pair of legs is flattened. Furthermore, some species, such as *Scolecithricella ctenopus* GIESBRECHT, has only worm-like sensory appendages on the terminal segments of the 2nd maxilla, but the 5th pair of legs is cylindrical. The other distinguished character of separating *Amallothrix* from *Scolecithricella* is the presence of an outer edge spine on the 1st segment of the exopod of the 1st pair of legs in *Amallothrix*, and absence of that spine in *Scolecithricella*. Nevertheless, a species of *Scolecithricella*, *S. ovata* FARRAN has a flattened 5th pair of legs, and the 2nd maxilla has the appendages of both bud-like and worm-like ones on the distal segments, but the 1st pair of legs has an outer edge spine on the 1st segment of the exopod.

SEWELL (1929, 1947) has called attention to the gradual reduction in the number of setae that spring from the various parts of the 1st maxilla in the genus *Amallothrix* Sars. He, perhaps, intended to subdivide the genus into groups in accordance with the number of setae. But it seems to be difficult in the

genus *Amallothrix* to separate the genus into groups, although he has successfully done it in the genus *Euaugaptilus* Sars by the degree of suppression and the number of setae found in the mandible and especially in the 1st maxilla. It is, at present, unadvisable to subdivide the genus *Scolecithricella* (sensu lato) further into two by the characters above stated. It will be necessary, as SEWELL mentions, to create more genera if the original genus *Scolecithricella* is to be properly divided up.

A. SCOTT (1909) in his account of the Copepoda of the Malay Archipelago recorded the occurrence of the following species: *Scolecithricella abyssalis* (GIESBRECHT), *S. auropecten* (GIESBRECHT), *S. bradyi* (GIESBRECHT), *S. longicornis* (T. SCOTT), *S. longifurca* (GIESBRECHT), *S. ctenopus* (GIESBRECHT), *S. marginata* (GIESBRECHT), *S. profunda* (GIESBRECHT), *S. obtusifrons* (SARS), *S. tenuipes* (T. SCOTT), *S. valida* (FARRAN), *S. gracilis* (SARS), *S. tydemani* A. SCOTT, and *S. curticauda* A. SCOTT. SEWELL in his account of the Copepoda of the Indian Seas, in addition to the species recorded by A. SCOTT, added the following species: *Scolecithricella pearsoni* SEWELL, *S. emarginata* (FARRAN), *S. arcuata* (SARS), and *S. indica* SEWELL. MORI (1937) recorded the following 5 species from the Japanese waters: *S. abyssalis*, *S. orientalis* MORI, *S. minor* (BRADY), *S. bradyi*, and *S. spinipedata* MORI. The last species appears to be identical with *Scolecithricella ctenopus* (GIESBRECHT). In the present collection I have been able to detect the following species: *S. bradyi*, *S. dentata* (GIESBRECHT), *S. profunda*, *S. vittata* (GIESBRECHT), *S. longipes* (GIESBRECHT), *S. tenuiserrata* (GIESBRECHT), *S. ctenopus*, *S. ovata* (FARRAN), *S. gracilis*, *S. propinqua* (SARS), *S. emarginata*, *S. valida*, *S. laminata* FARRAN, and *S. arcuata*. In addition to the species listed above, there are in the collection some species which appear to be new, which I describe under the name *S. beata*, *S. avia*, *S. modica*, *S. spinata*, *S. timida*, and *S. denticulata* respectively. Beside these species there occurred a species which seems to be a small form of *S. valida* FARRAN, but there are certain differences in the structure of the rostrum and in the swimming legs from those of *valida*, to which I have given a new name *S. sarsi*. But the form had been described by BRODSKY under the name *Amallothrix paravalida*.

Scolecithricella bradyi (GIESBRECHT)

(Fig. 128, a-i)

Scolecithrix bradyi, GIESBRECHT, 1892, p. 266, pl. 4, fig. 7, pl. 13, figs. 1, 3, 7, 11, 21, pl. 37, figs. 1, 2, 9; ESTERLY, 1905, p. 165, fig. 27; *Scolecithricella bradyi*, A. SCOTT, 1909, p. 89; *Scolecithrix bradyi*, FARRAN, 1936, p. 95; *Scolecithricella bradyi*, MORI, 1937, p. 51, pl. 25, figs. 8-12; TANAKA, 1953, p. 133.

Female. Length, 1.39 mm: cephalothorax, 1.39 mm; abdomen, 0.27 mm. The cephalothorax ovate (fig. a). The last two thoracic segments are separate. The

last thoracic segment asymmetrical; the right side is more produced posteriorly; the lateral distal corner narrowly rounded on each side (fig. c). The rostral filaments fine, attached to the prolonged basal (fig. d).

The abdominal segments and furca are in the proportional lengths, 54:7:7:7:25=100. The genital segment asymmetrical; the lateral margin is more swollen on the left side. The furcal rami about 2 times as long as wide.

The 1st antenna 19-jointed, reaches back to the base of the genital segment.

The 2nd maxilla has 5 long vermiform filaments and 2 short bud-like setae on the endopod.

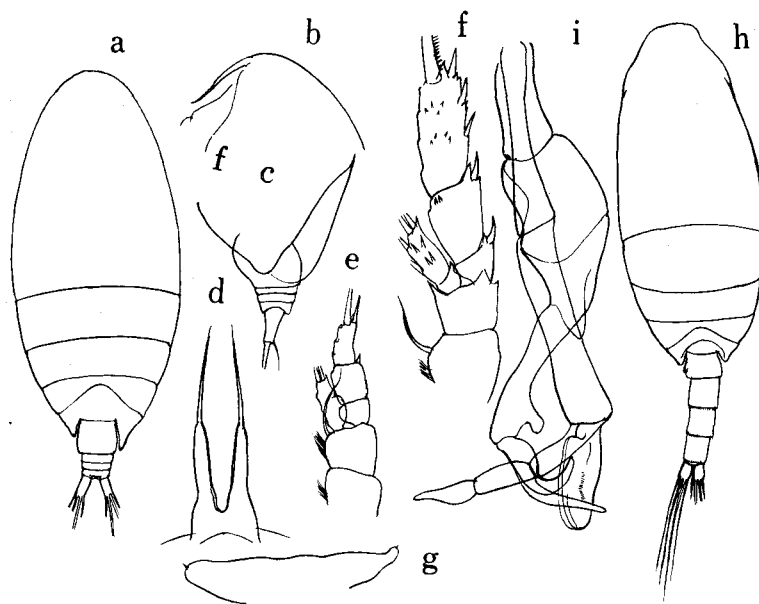


Fig. 128 *Scolecithricella bradyi* (GIESBRECHT).

Female: a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 1st leg; f, 2nd leg; g, 5th pair of legs. Male: h, dorsal aspect; i, 5th pair of legs.

The 1st leg has no outer marginal spine on the 1st segment of the exopod (fig. e).

The 2nd leg has on the 1st segment of the exopod the outer edge spine, not extending to the middle of the 2nd segment. The 2nd basal is slightly indented on the outer distal margin (fig. f).

The 5th pair of legs one jointed, slightly asymmetrical; the segment has a minute spine on the apex.

Male. Length, 1.48 mm; cephalothorax 1.07 mm; abdomen, 0.41 mm. The abdomen 5-segmented; the segments and furca are in the proportional lengths, 17:26:22:22:2:11=100 (fig. h).

The 1st antenna 18-jointed on the left side, reaches back to the distal end of the 1st abdominal segment; the segments 20 and 21 are fused on the right side.

The 2nd antenna has the exopod 1.5 times as long as the endopod. The other mouth organs are reduced.

The right 5th leg has a reduced endopod; the distal segment of the exopod is forked. The left leg a broad endopod; the exopod about 1.5 times as long as the endopod (fig. h).

Occurrence. The species is rather rare in the Izu region.

Distribution. It is widely distributed in the tropical and subtropical regions of the Pacific, Indian, and Atlantic Oceans. The species has been recorded from the warm waters in Japan.

Scolecithricella vittata (GIESBRECHT)

(Fig. 129, a-b)

Scolecithrix vittata, GIESBRECHT, 1892, p. 266, pl. 13, 37; *Scolecithricella vittata*, SARS, 1925, p. 190, pl. LII, figs. 15-20; FARRAN, 1926, p. 259; FARRAN, 1929, p. 247; FARRAN, 1936, p. 97; TANAKA, 1953, p. 133.

Female. Length, 1.75 mm. The abdomen is contained 4 times in the length of the cephalothorax. The lateral distal margin of the last thoracic segment broadly rounded. (fig. a, c). The rostral filament slender and long (fig. b).

The abdominal segments and furca are in the proportional lengths, 42:19:17:3:19=100. The genital segment as wide as long, not swollen below. The furcal rami 1.7 times as long as broad.

The 1st antenna 21-jointed, extends to the distal end of the anal segment.

The 1st maxilla has 7 setae on the outer lobe, 11 setae on the exopod, 15 (7+4+4) setae on the endopod, 4 setae on the 2nd basal, 3 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe, 13 setae on the 1st inner lobe. The 2nd maxilla has 5 bud-like setae and 3 long vermiform filaments on the endopod.

The 1st leg has no outer edge spine on the 1st segment of the exopod (fig. d). In the 2nd leg the outer edge spine on the 1st segment of the exopod long and curved (fig. e).

The 5th pair of legs one-jointed. The apical spine is long. There is a small spine at the base of the apical spine; this spine was not figured by GIESBRECHT or by SARS (fig. f).

Male. Length, 1.62 mm. General appearance as in the female. The 1st antenna extends to the distal margin of the 3rd abdominal segment when fully reflexed.

The 5th pair of legs exceeds the distal end of the abdomen. The endopod of the right leg is very short; the 2nd segment of the exopod has 2 protuberances, one on the middle, the another on the distal margin of the segment; the 3rd segment terminates in bud-like process. The endopod of the left leg short,

with a spinule on the apex; the distal segment of the exopod is obliquely truncate, and is furnished with a sort of lamella on the distal outer margin (fig. h, g),.

Occurrence. The species is fairly common in the deep water; 20 females and 6 males obtained in the vertical hauls 1000-0 m.

Distribution. The species has been recorded from the warm regions of the Atlantic, Mediterranean and Great Barrier Reef of Australia.

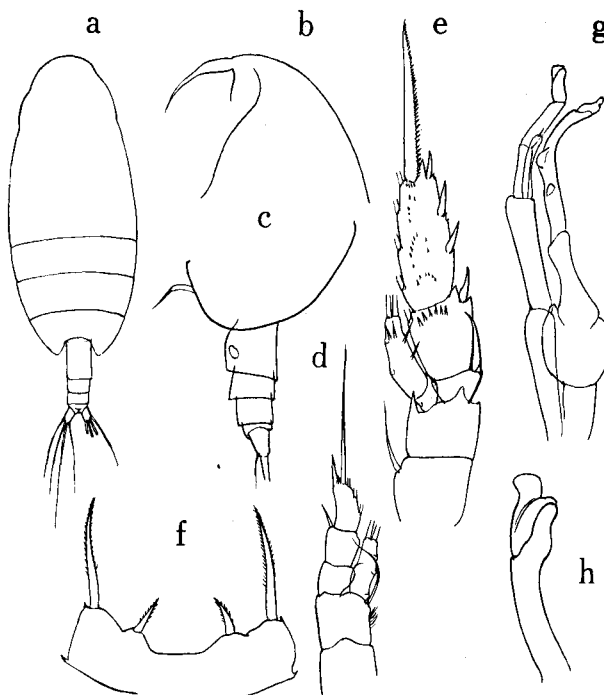


Fig. 129. *Scolecithricella vittata* (GIESBRECHT).

Female: a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, 1st leg; e, 2nd leg; f, 5th pair of legs. Male: g, 5th pair of legs; h, distal segment of right 5th leg.

Scolecithricella dentata (GIESBRECHT)

(Fig. 130, a-l)

Scolecithrix dentata, GIESBRECHT, 1892, p. 266, pl. 13, 37; FARRAN, 1905, p. 35; FARRAN, 1908, p. 51; *Scolecithricella dentata*, SARS, 1925, p. 191, pl. LII, figs. 21-23; FARRAN, 1926, p. 259; FARRAN, 1929, p. 247; FARRAN, 1936, p. 96; WILSON, 1950, p. 333, pl. 18, figs. 230-232; TANAKA, 1953, p. 133.

Female. Length, 1.43-2.07 mm. The cephalothorax and abdomen are in the proportional lengths as 75 to 25. The cephalothorax ovate. The postero-lateral corner of the last thoracic segment notched on each side (fig. a, c). The rostrum has a strong base to which rather short filaments are attached (fig. b, d).

The abdomen 4-segmented; the segments and furca are in the proportional lengths, 37:24:20:7:12=100. The genital segment not swollen below. The furcal rami as long as wide.

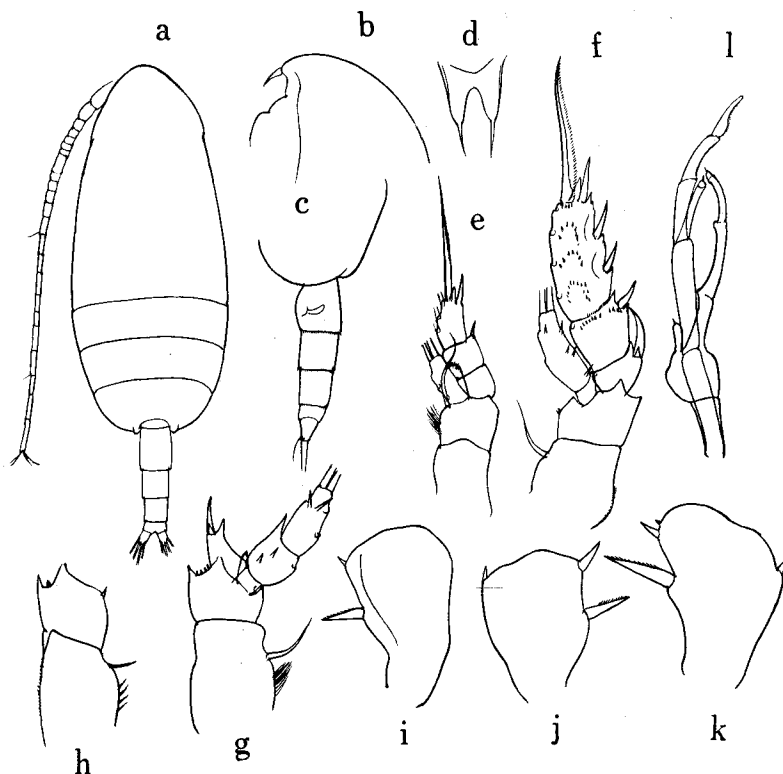


Fig. 130. *Scolecithricella dentata* (GIESBRECHT).

Female: a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 1st leg; f, 2nd leg; g, 3rd leg; h, 4th leg; i, 5th leg; j, 5th leg, other specimen; k, 5th leg, another specimen. Male: l, 5th pair of legs.

The 1st antenna 22-jointed extends about to the distal end of the genital segment.

The 2nd antenna has the exopod, 1.3 times as long as the endopod. The mandible has the exopod 1.7 times as long as the endopod. In the 1st maxilla the outer lobe has 7+2 setae on the exopod, 9 setae on the exopod, 7 setae on the endopod. The 2nd maxilla has both amalliform and vermiform filaments on

the distal segments. The maxilliped has the segments in the following proportions, 18:14:9 (endopod).

The 1st leg has no outer edge spine on the 1st segment of the exopod (fig. e). The 2nd leg has a long and curved spine on the 1st segment reaching the distal margin of the 2nd segment. The 1st basal segment finely serrated on the proximal outer margin; the 2nd segment has 3 small spines on the inner margin about the middle. The terminal spine of the exopod has 45 teeth (fig. f). The basal segments of the 3rd and 4th legs as figured (fig. g, h).

The 5th pair of legs is one-jointed and plate-like; the inner marginal spine is the longest; the outer marginal one is small; the distal spine is shorter than the inner marginal one. The 5th pair of legs is variable in the spinulation. In some specimen the outer marginal spine is absent (fig. i, j, k).

Male. Length, 1.40–1.75 mm. The cephalothorax and abdomen are in the proportional lengths as 72 to 28. The postero-lateral corner of the last thoracic segment rounded.

The abdominal segments and furca are in the proportional lengths, 15:30:21:21:49=100. The furcal rami divergent, about as long as wide.

The 1st antenna extends to the distal margin of the 3rd abdominal segment when fully extended.

The 5th pair of legs extends to the distal margin of the 4th abdominal segment. The right leg has a short endopod extending to the middle of the 1st segment of the exopod; the terminal spine of the exopod short. The left leg has the endopod reaching only to the distal margin of the 1st segment of the exopod; the distal segment of the exopod is finely haired on the inner margin.

The female specimen of *S. dentata* GIESBRECHT resembles quite well with *Scolecithrix dubia* GIESBRECHT, but can be distinguished from the latter by the length of the 1st antenna, and by the terminal segment of the exopod of the left 5th leg.

Occurrence. 18 females and 7 males from deep water.

Distribution. The species has a wide distribution in the Pacific, Atlantic, and Indian Oceans.

Scolecithricella abyssalis (GIESBRECHT)

Scolecithrix abyssalis, GIESBRECHT, 1892, p. 266, pl. 13, figs. 15, 40; *Scolecithrix dubia*, GIESBRECHT, 1892, p. 266, pl. 13, fig. 29 (male); *Scolecithricella abyssalis*, A. SCOTT, 1909, p. 89; SARS, 1925, p. 189, pl. LII, figs. 7–14; MORI, 1937, p. 52, pl. 25, fig. 13, pl. 26, figs. 7–10; TANAKA, 1937, p. 260, fig. 10, a–c; *Scolecithricella dubia*, TANAKA, 1937, p. 260, fig. 11, a–e; *Scolecithricella abyssalis*, WILSON, 1950, p. 331, pl. 34, fig. 519; BRODSKY, 1950, p. 271, fig. 181; TANAKA, 1953, p. 133.

Male. Length, 1.45 mm. The abdomen is contained 2.25 times in the length of the cephalothorax. The abdominal segments and furca are in the proportional

lengths, $15:29:21:21:4:10=100$. The furcal rami not divergent, longer than wide.

The 1st antenna extends to the middle of the 2nd abdominal segment. The 2nd antenna has the exopod 1.4 times as long as the endopod. The 2nd maxilla well developed, has 3 long vermiform and 5 amolliform filaments on the distal segments.

The 2nd leg as in the female; the outer edge spine on the 1st segment of the exopod long and curved, reaching the distal margin of the 2nd segment.

In the 5th pair of legs the terminal segment of the endopod of the right leg has a small spine; the distal segment of the exopod of the left leg is haired on the distal outer margin (TANAKA, 1937, fig. 11, e).

Remarks. The following three species, *Scolecithricella abyssalis* GIESBRECHT, *S. dentata* GIESBRECHT, and *S. profunda* GIESBRECHT resemble each other in the structure of the female 5th leg. My previous specimen (1.78 mm) from Suruga Bay is distinct from *S. dentata* in having narrow segment in the 5th pair of legs. *Scolecithricella dubia* GIESBRECHT and the male of *S. profunda* GIESBRECHT resemble closely, differing only in the minute point of structure in the 5th pair of legs.

Occurrence. One female from Suruga Bay, June, 1936, and three males from Sagami Bay in the deep water hauls, November, 1937.

Distribution. The species has been recorded from the Atlantic, Malay Archipelago, and the Pacific. It has been recorded from the depth 100-0 m in the Formosa Strait. The male has been recorded from the Mediterranean Sea.

Scolecithricella profunda (GIESBRECHT)

(Fig. 131, a-k)

Scolecithrix profunda, GIESBRECHT, 1892, p. 266, pl. 13, figs. 5, 26; *Scolecithricella profunda*, A. SCOTT, 1909, p. 91; FARRAN, 1936, p. 97; TANAKA, 1953, p. 133.

Female. Length, 2.04 mm: cephalothorax, 1.66 mm; abdomen, 0.38 mm. General appearance as in the female of *S. vittata* (GIESBRECHT). The frontal margin of the head rather narrowly rounded in lateral aspect (fig. a). The lateral distal corner of the last thoracic segment rounded (fig. b). The rostrum gradually attenuate into slender filaments (fig. d).

The abdominal segments and furca are in the proportional lengths, $43:19:17:2:19=100$. The furcal rami 1.6 times as long as wide (fig. c).

The 1st antenna 21-jointed, reaches back to the end of the furca.

The 2nd antenna has the exopod shorter than the endopod (29:32). The mandible has the exopod 2 times as long as the endopod. The 1st maxilla has 7 long and 2 short setae on the outer lobe, 6 setae on the exopod, 5+4 setae on the endopod, and 5 setae on 2nd basal. The 2nd maxilla has 3 long vermiform and 5 amalliform sensory filaments on the endopod.

The 1st leg has no outer edge spine on the 1st segment of the exopod. In

the 2nd leg the outer edge spine on the 1st segment of the exopod is long and slightly curved, extending about to the distal margin of the 2nd segment of the exopod (fig. e); the terminal spine of the exopod has 32 teeth; the inner margin of the 2nd basal segment has a small spine. The 3rd leg has 26 teeth on the terminal spine of the exopod, and about 50 teeth on the same spine of the 4th leg.

The 5th pair of legs as in the female of *S. dentata* (GIESBRECHT), but the inner marginal spine is very strong.

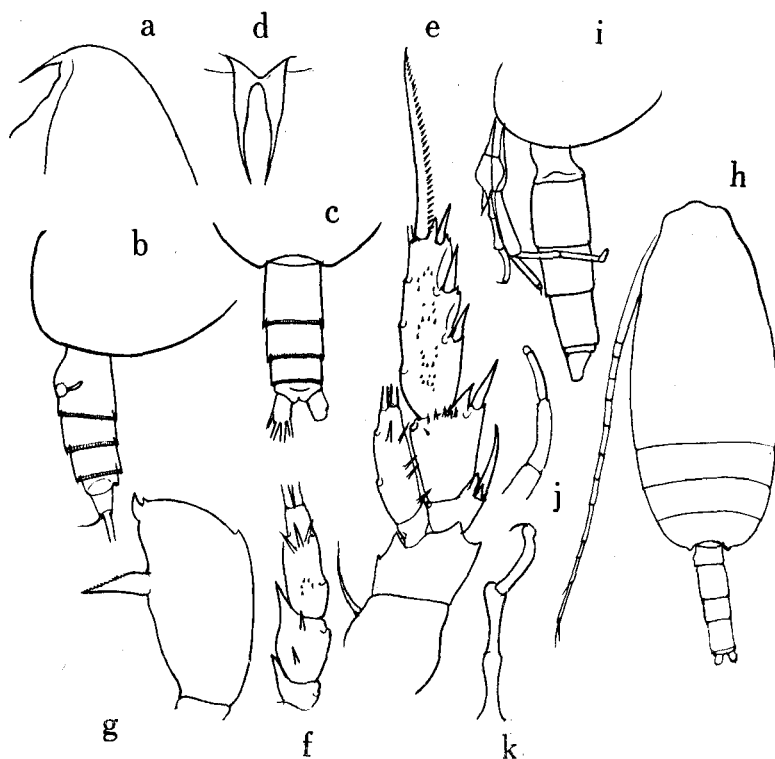


Fig. 131. *Scolecithricella profunda* (GIESBRECHT).

Female: a, dorsal aspect; b, last thoracic segment and abdomen, lateral aspect; c, abdomen, dorsal aspect; d, rostrum; e, 2nd leg; f, endopod of 3rd leg; g, 5th leg. Male: h, dorsal aspect; i, last thoracic segment and abdomen, lateral aspect; j, exopod of left 5th leg; k, exopod of right 5th leg.

Male. Length, 2.23 mm: cephalothorax, 1.59 mm; abdomen, 0.64 mm. General appearance as in the female (fig. h). The 1st antenna reaches back to the middle of the 4th abdominal segment. The 2nd leg as in the female, has a long and curved outer edge spine on the 1st segment of the exopod; the terminal spine of the exopod has about 50 teeth.

The 5th pair of legs extends about to the distal margin of the 4th abdominal

segment, resembles in general appearance to that of *S. dentata* GIESBRECHT. But the distal segment of the exopod of the left leg is shorter than the preceding segment; the apex of the segment is furnished with a sort of lamella; the inner margin of the segment is furnished with short hairs in the present species (fig. i, j, k).

Occurrence. 9 females and 5 males from the deep water.

Distribution. Recorded from the Mediterranean, Malay Archipelago, and Great Barrier Reef of Australia.

Scolecithricella longipes (GIESBRECHT)

(Fig. 132, a-f)

Scolecithrix longipes, GIESBRECHT, 1892, p. 266, pl. 13, fig. 20; TANAKA, 1953, p. 133.

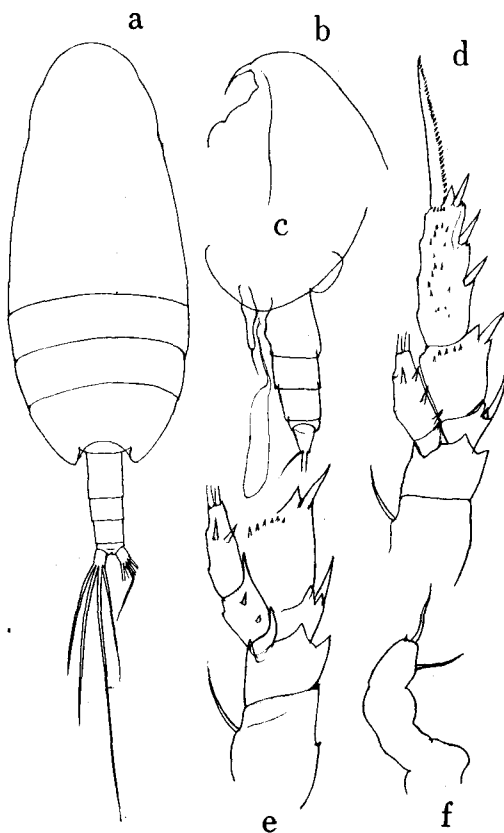


Fig. 132. *Scolecithricella longipes* (GIESBRECHT). Female; a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, 2nd leg; e, 3rd leg; f, 5th pair of legs.

Female. Length, 1.73 mm : cephalothorax, 34 mm. ; abdomen, 0.39 mm. General appearance as in the female of *S. vittata* (GIESBRECHT). The last thoracic segment carries a rounded process of moderate in size at the base of the abdomen when viewed from the lateral (fig. a, b, c).

The abdomen 4-segmented; the segments and furca are in the proportional lengths, $38:21:19:5:17=100$. The genital segment cylindrical, longer than wide. The furcal rami 1.7 times as long as wide.

The 1st antenna 21-jointed, reaches back to the distal margin of the 2nd abdominal segment.

The 2nd antenna has the exopod about as long as the endopod (23:22). The 1st maxilla has 7+2 setae on the outer lobe, 6 setae on the exopod, 5+3 setae on the endopod, 5 setae on the 2nd basal segment. The 2nd maxilla has 3 long vermiform and 5 bud-like filaments on the distal segments.

The 1st to 4th legs as those of *S. vittata*. The 2nd leg has on the 1st segment of the exopod a moderately long outer edge spine extending about to the middle of the 2nd segment; the terminal spine of the exopod has 34 teeth (fig. e). The terminal spine of the 3rd and 4th legs have each 24, and 38 teeth.

The 5th pair of legs was of abnormal structure in the present specimen; the right leg stump. The left leg incompletely 3-jointed; the spine on the distal segment not strong (fig. f).

Occurrence. Only a single female specimen from the deep water of Sagami Bay.

Distribution. The species has been recorded only from the Mediterranean.

Scolecithricella tenuiserrata (GIESBRECHT)

(Fig. 133, a-g)

Scolecithrix tenuiserrata, GIESBRECHT, 1892, p. 266, pl. 13, fig. 13, 16, 24, 25, 39, pl. 37, figs. 4, 12; *Scolecithricella tenuiserrata*, FARRAN, 1936, p. 97; TANAKA, 1953, p. 133.

Male. Length, 1.30 mm: cephalothorax robust, about half as wide as long. The postero-lateral margin of the last thoracic segment rounded (fig. b). The rostrum as in *S. profunda* GIESBRECHT, the basal part attenuates into slender filaments.

The abdomen 5-segmented, and is contained 2.65 times in the length of the cephalothorax. The abdominal segments and furca are in the proportional lengths, $15:31:20:23:3:8=100$. The 2nd segment longer than wide; the 3rd segment wider than long; the 4th as wide as long. The furcal rami divergent, as wide as long.

The 1st antenna 19-jointed, extends to the distal margin of the 1st abdominal segment; the segments are in the following proportional lengths;

Segment	1	2	3	4	5	6	7	8-9	10-11	12	13	14	15	16	17	18
	60	30	25	26	25	26	26		107		47	56	47	56	52	56
	19	20-21	22	23	24-25											
	56	73	47	86	99	=1,000.										

The 2nd antenna has the exopod 1.4 times as long as the exopod. The 1st maxilla has 7+2 setae on the outer lobe. The 2nd maxilla has only vermiform filaments on the distal segments.

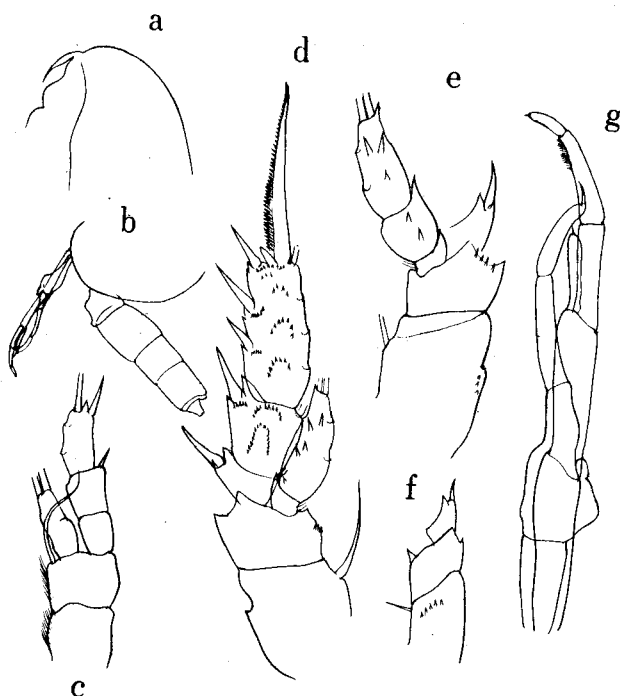


Fig. 133. *Scolecithricella tenuiserrata* (GIESBRECHT).

Male: a, head, lateral aspect; b, last thoracic segment and abdomen, lateral aspect; c, 1st leg; d, 2nd leg; e, 3rd leg; f, 4th leg; g, 5th pair of legs.

The 1st leg has no outer edge spine on the 1st segment of the exopod (fig. c). In the 2nd leg the outer edge spine long and straight, as long as that on the 2nd segment of the exopod; the middle spine on the outer margin of the 3rd segment is the longest; the terminal spine of the exopod has about 40 teeth; the outer margin of the 1st basal segment is indented; the inner margin of the 2nd basal is furnished with small spines on the middle (fig. d).

The 5th pair of legs reaches back to the distal margin of the 3rd abdominal segment. The endopod of the right leg very small; the distal segment of the

exopod is transformed into a short spine. The endopod of the left leg short, extending about to the distal end of the 1st segment of the exopod of the same leg; the exopod 3-segmented; the 2nd segment is haired on the inner distal margin; the 3rd segment is short, carries a small apine on the apex (fig. g).

Remarks. GIESBRECHT's specimen from the Mediterranean Sea measured 1.15 mm in the female, 1.45 mm in the male. FARRAN's from the Great Barrier Reef measured 1.00–1.12 mm in the female.

Occurrence. One male in Sagami from the deep water.

Distribution. The species has been recorded from the Mediterranean and Great Barrier Reef of Australia.

Scolecithricella beata sp. nov.

(Fig. 134, a–b)

Female. Length, 1.25 mm: cephalothorax, 1.04 mm; abdomen, 0.21 mm. The cephalothorax elongate ovate. The head fused with the 1st thoracic segment. The last two thoracic segments are fused. The photero-lateral margin of the last thoracic segment rounded, and notched at the apex (fig. a). The rostrum gradually attenuates into long filaments (fig. b); the filaments are rather thick.

The abdomen 1–14 segmented; the segments and furca are in the proportional lengths; 36:16:16:12:20=100. The genital segment not swollen below. The furcal rami longer than wide.

The 1st antenna 22-jointed, extends to the distal margin of the cephalothorax; the segments 8, 9, 10 and 24, 25 are fused; the segments are in the following proportional lengths:

Segment	1	2	3	4	5	6	7	8–9–10	11	12	13	14	15	16	17
	36	18	27	27	27	27	27	80	22	27	31	36	45	53	53
	18	19	20	21	22	23	24–25								
	53	58	53	63	63	76	98	=1,000.							

The 2nd antenna has the exopod 1.3 times as long as the endopod. The mandible has the exopod 1.3 times as long as the endopod. The 1st maxilla has 7 setae on the outer lobe, 6 setae on the exopod, 5+3 setae on the endopod, 4 setae on the 2nd basal, 1 seta on the 3rd inner lobe, 2 setae on the 2nd inner lobe, 11 setae on the 1st inner lobe. The 2nd maxilla has only worm-like filaments on the endopod (fig. d). The maxilliped as usual found in the other members of the genus.

The 1st leg has no outer edge spine on the 1st segment of the exopod (fig. e). The 2nd leg has a fairly long and curved spine on the 1st segment of the exopod, reaching the middle of the next segment; the 2nd segment of the exopod has the outer edge spine shorter than the outer edge spine on the 1st

segment of the exopod (fig. f). The 3rd leg has a group of small spines on the distal border where the endopod articulates with the basal (fig. g). The 4th leg has several spines near the inner margin on the posterior surface; the 2nd and 3rd segments both exopod and endopod are more finely covered with groups of minute spinules on the posterior surface than those on the 2nd or 3rd legs.

The 5th pair of legs 2-jointed; the segments are cylindrical in shape; the terminal segment carries 2 spines, subequal in lengths, on the distal margin (fig. h).

Remarks. The species is closely related to *S. auropecten* (GIESBRECHT) in the

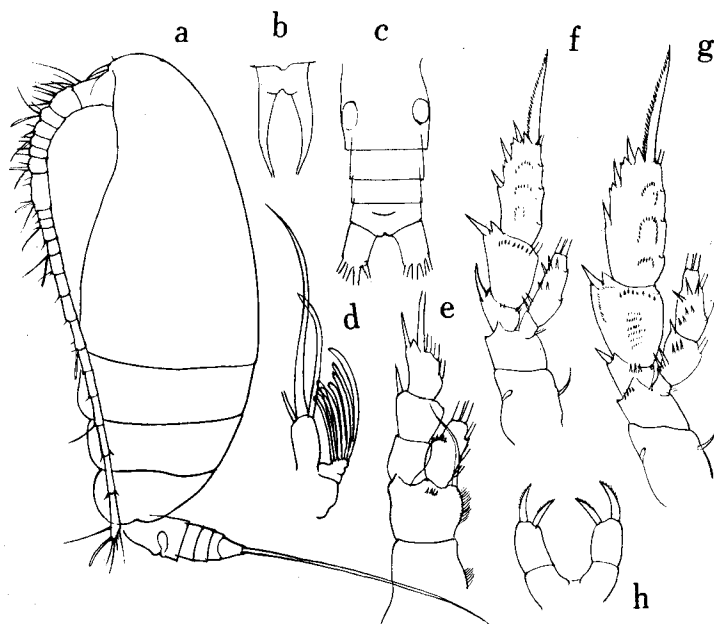


Fig. 134. *Scolecithricella beata* sp. nov.

Female; a, lateral aspect; b, rostrum; c, abdomen, dorsal aspect; d, 2nd maxilla; e, 1st leg; f, 2nd leg; g, 3rd leg; h, 5th pair of legs.

structure of the 5th pair of legs, but can be easily separated from it in its small size and in the length of the terminal spines on the 5th leg.

Occurrence. Two females in Sagami Bay from the deep water.

Scolecithricella avia sp. nov.

(Fig. 135, a-h)

Male. Length, 1.29 mm: cephalothorax 0.93 mm; abdomen, 0.36 mm. General appearance as in the female of *S. beata* (fig. a). The head fused with the thoracic

segment. The last two thoracic segments are fused. The lateral margin of the head evenly rounded when viewed from the lateral (fig. b). The postero-lateral margin of the last thoracic segment rounded, but slightly produced at the apex (fig. d). The rostrum gradually attenuates into two slender filaments (fig. c).

The abdominal segments and furca are in the proportional lengths, 16:24:21:26:2:11=100. The furcal rami parallel, 1.3 times as long as wide.

The 1st antenna 19-jointed on the left side, reaches back about to the middle of the 3rd abdominal segment. The distal 2 segments lost; the proportional

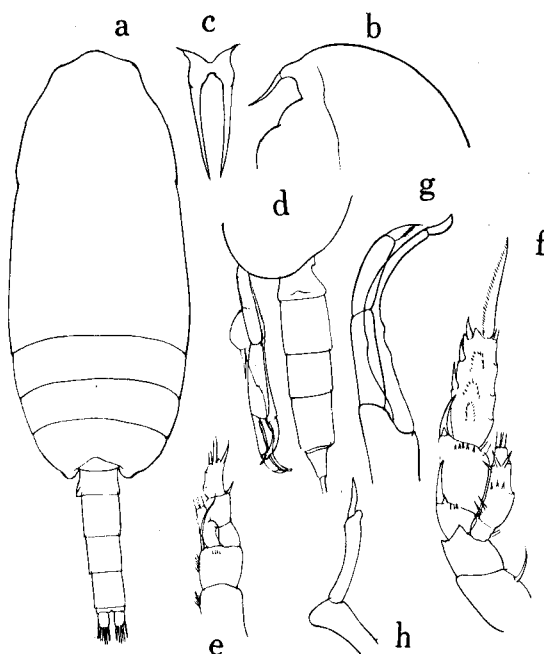


Fig. 135. *Scolecithcella avia* sp. nov.

Male: a, dorsal aspect; b, head, lateral aspect; c, rostrum; d, last thoracic segment and abdomen, lateral aspect; e, 1st legs; f, 2nd leg; g, exopod and endopod of left 5th leg; h, exopod of right 5th leg.

lengths of the remaining segments are as follows:

Segment	1	2	3	4	5	6	7	8-9	10-11	12-13	14	15	16	17	18
	13	25	9	6	7	6	6		35		9	8	14	13	13
	19	20	21	22	23	24-25									
	13	14	10	16											

The 2nd antenna as in the foregoing species. The mandible well developed. The 1st maxilla has 7 long and 2 short setae on the outer lobe, 6 setae on the

exopod, 5 setae on the segments 2-3 and 4 setae on the 1st segment of the endopod, 5 setae on the 2nd basal, 3 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe. The 2nd maxilla has 3 vermiform and 5 amalliform filaments on the endopod; one of the amalliform filaments is much larger than the rest. In the maxilliped the 1st and 2nd basal segments are of about equal lengths.

The 1st leg has no outer edge spine on the 1st segment in the exopod; the posterior surface of the 2nd basal segment has a transverse row of small spines (fig. e). In the 2nd leg the outer edge spine on the 1st segment of the exopod is long and curved, exceeding the middle of the outer margin of the next segment; the outer edge spine of the 2nd segment of the exopod is about as long as that on the 1st segment (fig. f); the terminal spine of the exopod has 37 teeth.

The 5th pair of legs extends to the middle of the furca when fully reflexed. The endopod of the leg is longer than the 3-jointed exopod (fig. g). The exopod of the right leg has a spine on the distal segment (fig. h).

Remarks. The present spicemen seems, at first sight, to be the male of *S. beata*, but the long 1st antenna, the sensory appendages on the distal segment of the 2nd maxilla, and the lengths of the outer edge spine on the 1st and 2nd segments of the 2nd leg differ from those found in the female specimen of *S. beata*.

Occurrence. 1 male from the deep water of Suruga Bay.

Scolecithricella ctenopus (GIESBRECHT)

(Fig. 136, 2-f)

Scolecithrix ctenopus, GIESBRECHT, 1892, p. 266, pl. 13, figs. 36-38, pl. 37, fig. 15; *Scolecithrix ctenopus*, T. SCOTT, 1894, p. 48, pl. 5, figs. 2-9; *Scolecithricella ctenopus*, A. SCOTT, 1909, p. 91; SEWELL, 1929, p. 212, text-fig. 79, a-g; *Scolecithrix ctenopus*, FARRAN, 1936, p. 95; *Scolecithricella spinipedata*, MORI, 1937, p. 53, pl. 26, figs. 11-16; *Scolecithricella ctenopus* TANAKA, 1953, p. 133.

Female. Length, 1.52 mm. The abdomen is contained 4.6 times in the length of the cephalothorax. The cephalothorax moderately robust, tapers towards both ends when viewed from the dorsal. The head fused with the 1st thoracic segment, but the line of fusion is clearly visible. The last 2 thoracic segments are fused. The postero-lateral margin of the thoracic segment is produced into a small spine. (fig. a, b, c).

The abdomen 4-segmented; the segments and furca are in the proportional lengths, 54:13:10:6:17=100. The genital segment about as long as wide; the ventral surface swollen below, and sinuate. The furcal rami as long as wide.

The 1st antenna 23-jointed, extends to the distal margin of the abdomen when fully reflexed.

The 2nd antenna has the exopod slightly longer than the endopod (5:4). In the mandible the exopod is about as long as the endopod. The 1st maxilla

has 7 setae on the outer lobe, 5+2 setae on the endopod, 3 setae on the 2nd basal. The 2nd maxilla has 3 long and 6 short vermiform filaments on the terminal segments; the spine on the 5th lobe is slender and long.

The 1st leg has no outer edge spine on the 1st segment of the exopod; the basal segments have no small spines on the posterior surface; the endopod has a number of scattered spines on the distal part of the segment in posterior aspect. The 2nd leg indented on the outer margin of the 1st basal segment; the outer edge spine on the 1st segment of the exopod is very small; the terminal spine of the exopod is slightly distorted, and has 15 teeth (fig. d). In the 3rd leg the 1st basal segment has a number of scattered small spines near the inner margin; the outer margin deeply notched about the middle; the 2nd basal has a

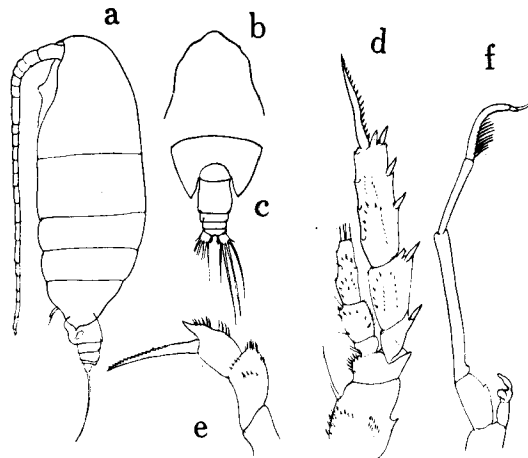


Fig. 136. *Scolecithricella ctenopus* (GIESBRECHT).
Female: a, lateral aspect; b, head, dorsal aspect; c, last thoracic segment and abdomen, dorsal aspect; d, 2nd leg; e, 5th leg. Male; f, 5th pair of legs.

row of small spines on the inner margin. The terminal spine of the exopod has 15 teeth; the spine is distorted. The terminal spine of the exopod of the 4th leg has 14 teeth.

The 5th pair of legs has 2 free segments attached to the basal; the 1st segment is about as long as the 2nd. The 2nd segment terminates into a strong spine, and has an inner marginal spine finely dentated on the external margin; the segment carries several small spines along the distal outer margin. The 1st segment is furnished with small spines on the distal margin; the segment has a row of minute spines on the distal 1/3 of the segment.

Male. Length, 1.52-1.57 mm. The abdomen is contained 2.8 times in the length of the cephalothorax. The lateral distal corner of the last thoracic seg-

ment not pointed. The line of fusion between the head and 1st thoracic segment is detectable on the middorsal region.

The 1st antenna 20-jointed on the right side, extends to the distal end of the abdomen. The 2nd maxilla as in the female.

The 5th pair of legs is very characteristic; the right leg is very small. The left leg is very long and slender; the endopod absent; the distal segment has 2 apical spines of which the outer marginal one is long and curved; the inner proximal margin of the segment is provided with a comb-like row of slender spines.

Remarks. The present female specimen is slightly larger in size than that recorded by SEWELL from the Indian Seas. *Scolecithricella spinipendata* described by MORI in 1937 appears to be identical with *S. ctenopus* GIESBRECHT in its general appearance and in having a small outer edge spine on the 1st segment of the exopod of the 2nd leg. The female 5th pair of legs shows some variations in the length of the inner marginal spine.

Scolecithricella ctenopus appears to be intermediate between *Scolecithricella* and *Amallothrix* in having only vermiform appendages on the 2nd maxilla, and a cylindrical 5th pair of legs in the female. The male 5th pair of legs of the present species differs also greatly from that found in the male of *Scolecithricella* (sensu stricto).

Occurrence. 6 female and 4 males from the surface layer of Sagami Bay.

Distribution. The species appears to be a warm-water inhabitant, and has been recorded from the Gulf of Guinea, Malay Archipelago, Indian Seas, and the South Pacific Ocean.

Scolecithricella ovata (FARRAN)

(Fig. 137, a-p)

Scolecithrix ovata, FARRAN, 1905, p. 37, pl. 6, figs. 13-18 and pl. 7, figs. 1-5; FARRAN, 1908, p. 51; *Scolecithricella ovata*, WITH, 1915, p. 208; SARS, 1925, p. 188, pl. LII, figs. 1-6; FARRAN, 1929, p. 246; WILSON, 1932, p. 84; JESPERSEN, 1934, p. 90; FARRAN, 1936, p. 97; WILSON, 1950, p. 334, pl. 35, fig. 527; BRODSKY, 1950, p. 269, fig. 179; TANAKA, 1953, p. 133; VERVOORT, 1957, p. 102.

Female. Length, 1.80-2.13 mm. The abdomen is contained 4.6 times in the length of the cephalothorax. The cephalothorax ovate. The head fused with the 1st thoracic segment; the last two thoracic segments are fused (fig. a). The head obtusely rounded in lateral view (fig. b). The lateral distal corner of the last thoracic segment slightly emarginate (fig. c). The rostrum consists of a divergent base to which rather strong spines are attached (fig. d).

The proportional lengths of the abdominal segments and furca are as follows: 38:20:20:5:17=100. The genital segment as long as wide; the ventral surface slightly produced below. The furcal rami 1.4 times as long as wide.

The 1st antenna 23-jointed, extends to the distal end of the anal segment; the segments 8-9 and 24-25 are fused; the spinulation on the segments are just as described by WITH.

The 2nd antenna has the exopod 1.6 times as long as the endopod. The 1st maxilla has 9 setae on the outer lobe, 5 setae on the exopod, 5 setae on the

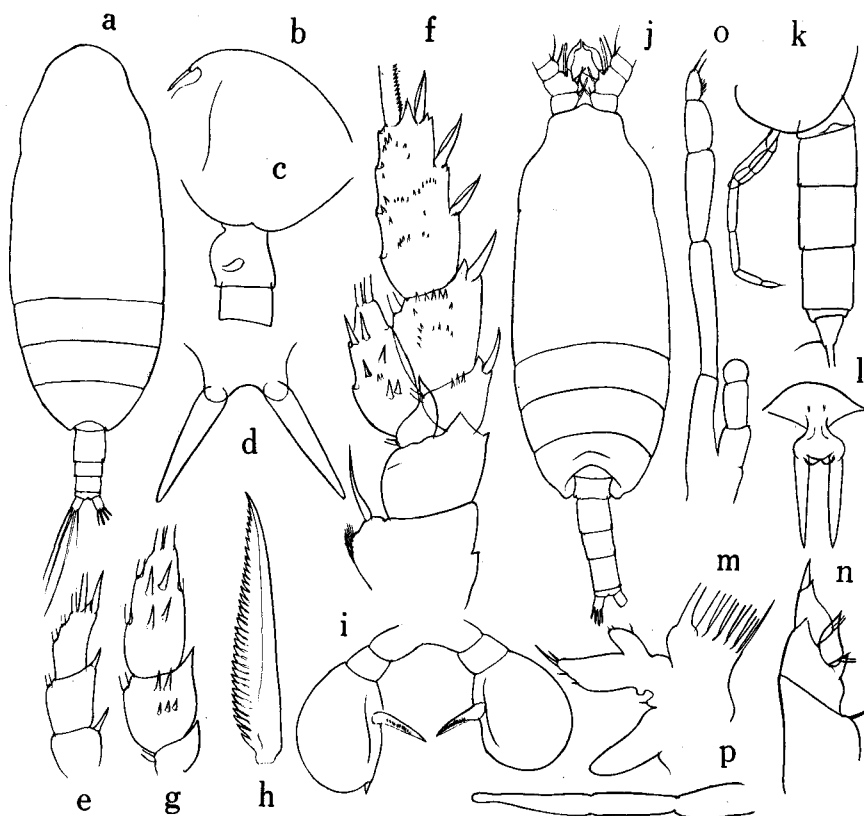


Fig. 137. *Scolecithricella ovata* (FARRAN).

Female; a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment, lateral aspect; d, rostrum; e, exopod of 1st leg; f, 2nd leg; g, endopod of 3rd leg; h, terminal spine of exopod of 4th leg; i, 5th pair of legs. Male; j, dorsal aspect; k, last thoracic segment and abdomen, lateral aspect; l, rostrum; m, 1st maxilla; n, 4th leg; o, 5th pair of legs; p, right 5th leg, other specimen.

endopod, 4 setae on the 2nd basal, 3 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe, and 11 setae on the 1st inner lobe. The 2nd maxilla has a large 5th lobe; the endopod are furnished with 3 long vermiform filaments and several short amalliform setae. The maxilliped has 1 short amalliform seta, 2 long sensory filaments, and 1 ordinary seta on the proximal half of the 1st basal segment.

The 1st leg has a well-developed outer edge spine on the 1st segment of the exopod (fig. e). In the 2nd leg the 1st basal segment has an indentation on the outer margin; the posterior surface of the segments of both exopod and endopod are furnished with groups of small spines (fig. f); the terminal spine of the exopod has 43 teeth. The 3rd leg has the endopod furnished with rows of spines as shown in the figure (fig. g). In the 4th leg the terminal spine of the exopod makes fenestella (fig. h).

The 5th pair of legs oval in shape, has a strong inner marginal spine on the distal segment; the inner distal margin of the segment is furnished with a small spine on the right leg. In some specimens examined the 5th pair of legs asymmetrical as has been described by FARRAN (1936).

Male. Length, 1.59 mm: cephalothorax, 1.14 mm; abdomen, 0.45 mm. The cephalothorax ovate. The head fused with the 1st thoracic segment: the last two thoracic segments are incompletely fused; the line of fusion faintly visible on the mid-dorsal region. The frontal margin of the head slightly produced in the mid-dorsal area (fig. j). The postero-lateral corner of the last thoracic segment rounded (fig. k). The basal part of the rostrum is produced ventrally in a spoon-shaped projection to which 2 parallel spines are attached (fig. l).

The abdominal segments and furca are in the proportional lengths, 14:30:20:24:4:8=100. The furcal rami divergent, about as long as wide.

The 1st antenna 19-jointed on the left side, extends to the distal margin of the 3rd abdominal segment. The lengths of the segments are in the proportions:

Segment	1	2	3	4	5	6	7	8-9	10-11	12-13	14	15	16	17	18
	57	43	29	26	26	26	23		114		29	40	66	69	69
	19	20	21	22	23	24-25									
	66	52	52	76	86	=	1,000.								

The 2nd segment has a large and characteristic aesthetask on the anterior distal margin (fig. j).

The 2nd antenna has the exopod 1.3 times as long as the endopod; the 1st segment of the exopod has fine hairs on the anterior margin. The mandible is robust. The 1st maxilla reduced except the outer lobe which has 7 long setae on the anterior margin (fig. n). The 2nd maxilla has only long vermiform filaments on the endopod. The 1st basal segment of the maxilliped is conspicuous, and the spinulation reduced much.

The 1st leg has an outer edge spine on the 1st segment of the exopod; the 1st basal segment has an indentation on the distal 1/4 of the outer margin. The 2nd leg has an outer edge spine on the 1st segment of the exopod, reaching the middle of the outer margin of the next segment; the terminal spine of the exopod has 40 teeth. In the 3rd and 4th legs the 2nd basal have each a sharp ridge in the inner distal corner of the segment; the posterior surface of the exopod and

endopod are provided with rows of small spines. The 1st basal segment of the 4th leg is smooth on the outer margin; the terminal spine of the exopod has 40 serrations.

The 5th pair of legs reaches back to the end of the anal segment when fully reflexed. The right leg is 4-jointed and short: the terminal segment is rounded on the apex, but another specimen has an elongated distal segment. The left leg 5-jointed, and very long; the 2nd segment is as long as the combined lengths of the next 2 segments; the distal segment is furnished with 2 spines on the apex, and a row of short hairs on the inner margin.

Remarks. The female specimen agrees well with the description and figures given by FARRAN. The species differs from the other members of *Scolecithricella* (sensu stricto) in having an outer edge spine on the 1st segment of the exopod in the 1st leg. The male 5th pair of legs has, in the main, the similar structure as is found in *Scolecithricella ctenopus* (GIESBRECHT). The male of *S. ovata* has hitherto been undescribed.

Occurrence. 27 females and 7 males from the deep water of the Izu region.

Distribution. The species has a wide distribution, and has been recorded from the Gulf of Maine, Woods Hole, the South Pacific Ocean, the Antarctic, and Far Eastern and Polar Seas of the U.S.S.R.

Scolecithricella modica sp. nov.

(Fig. 138, a-j)

Female. Length, 1.64 mm: cephalothorax, 1.30 mm; abdomen 0.34 mm. The cephalothorax elongate ovate. The head fused with the 1st thoracic segment; the 4th fused with the 5th. The frontal margin of the head highly arched in dorsal aspect (fig. a), but evenly rounded when viewed from the lateral (fig. b). The lateral distal corner of the last thoracic segment narrowly rounded (fig. c). The rostrum resembles that of *Scolecithricella minor* (BRADY); the basal part broad to which fine filaments are attached (fig. d).

The abdomen 4-segmented; the segments and furca are in the proportional lengths, 37:18:15:10:20=100. The genital segment produced below. The first 3 segments are fringed with fine teeth on the distal margin. The furcal rami 2 times as long as broad.

The 1st antenna 23-jointed, extends to the middle of the genital segment; the segments are in the proportional lengths:

Segment	1	2	3	4	5	6	7	8-9	10	11	12	13	14	15	16	17
	65	46	26	26	26	29	65	26	23	29	39	43	43	46	46	49
	18	19	20	21	22	23	24-25									
	49	20	52	59	43	65	79	=1,000.								

The 2nd antenna has the exopod 1.4 times as long as the endopod (25:18). The mandible has a slender endopod. In the 1st maxilla the outer lobe has 7 long and 2 short setae, the exopod has 6 setae, endopod has 6 setae, the 2nd basal has 5 setae, the 3rd inner lobe has 3 setae, the 2nd inner lobe has 2 setae, and the 1st inner lobe has 13 setae. The 2nd maxilla has 8 long vermiform filaments on the endopod (fig. e). In the maxilliped the 2nd basal segment is as long as the endopod; the 1st basal has a bud-like filament on the anterior margin about the middle of the segment.

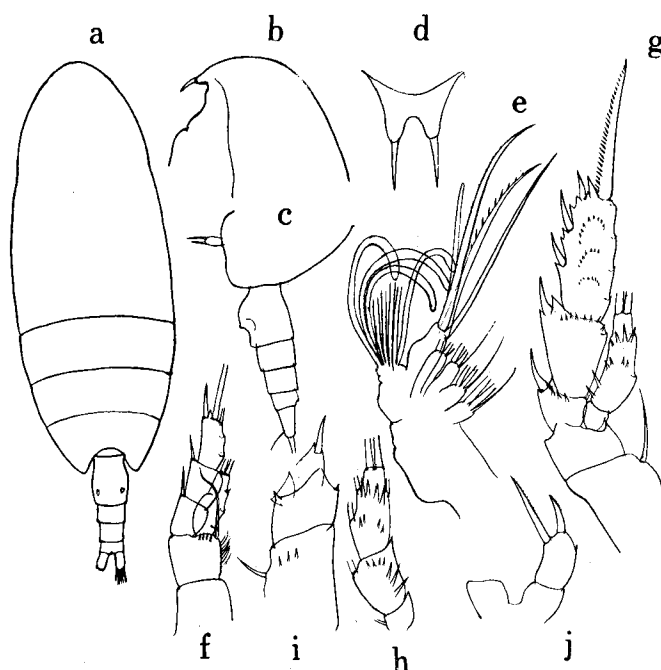


Fig. 138. *Scolecithricella modica* sp. nov.

Female: dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 2nd maxilla; f, 1st leg; g, 2nd leg; h, endopod of 3rd leg; i, 4th leg; j, 5th leg.

The 1st leg has an outer edge spine on the 1st segment of the exopod (fig. f). In the 2nd leg the 1st segment of the exopod has an outer edge spine extending about to the middle of the outer margin of the 2nd segment; the spine is slightly curved near the distal end; the posterior surface of the exopod and endopod are furnished with groups of small spines (fig. g); the terminal spine of the exopod has 40 teeth. The 4th leg has a row of small spines on the 1st basal segment (fig. i).

The 5th pair of legs is composed of a free segment attached to the basal

the distal segment has 2 apical spines of which the inner one is longer; the outer marginal spine very small (fig. j).

Remarks. The specimen resembles *Scolecithricella auropecten* (GIESBRECHT) in the structure of the 5th pair of legs, but differs from it in the structure of the 2nd antenna, and in the number of setae arising from various parts of the 1st maxilla. It is noticeable that the specimen has an outer edge spine on the 1st segment on the 1st leg and cylindrical 5th pair of legs, as are found in the genus *Amallothrix* SARS.

Occurrence. One female from the deep water of Sagami Bay.

Distribution. North-west Pacific (present record).

Scolecithricella gracilis (G. O. SARS)

(Fig. 139, a-l)

Scolecithricella gracilis, SARS, 1905, p. 21; *Scolecithrix globiceps*, FARRAN, 1908, p. 54, pl. v, figs. 8-12, pl. vi, fig. 8; ? *Scolecithricella gracilis*, A. SCOTT, 1909, p. 93, pl. xxxi, figs. 8-13; *Scaphocalanus globiceps*, WITH, 1915, p. 199; *Amallothrix gracilis*, SARS, 1925, p. 176, pl. xlix, figs. 9-21; JESPERSEN, 1934, p. 89; SEWELL, 1947, p. 161, text-fig. 43, A-F; WILSON, 1950, p. 161.

Female. Length, 4.13 mm; cephalothorax, 3.20 mm; abdomen, 0.93 mm. The cephalothorax and abdomen are in the proportional lengths as 78 to 22. The head fused with the 1st thoracic segment. The last two thoracic segments incompletely fused; the line of fusion faintly visible in dorsal aspect (fig. a). The frontal margin of the head narrowly rounded in dorsal aspect, but obtusely rounded when viewed from the lateral (fig. b). The lateral margin of the last thoracic segment rounded, but the posterior corner slightly produced (fig. c). The rostrum bifurcate; the basal portion swollen, and the terminal filaments tapers into fine point (fig. d).

The abdomen 4-jointed; the segments and furca are in the proportional lengths as 42:23:17:4:14=100. The genital segment slightly produced below. The first three segments are fringed with fine teeth on the distal border. The anal segment is in the present specimen concealed beneath the foregoing. The furcal rami 1.3 times as long as wide.

The 1st antenna 23-jointed, exceeds the end of the furca by distal one segment. The lengths of the segments are in the following proportions: (left side)

Segment	1	2	3	4	5	6	7	8-9	10	11	12	13	14	15	16	17
	46	42	23	23	25	25	26	53	23	26	26	38	42	52	61	61
	18	19	20	21	22	23	24-25									
	61	57	49	53	48	61	76	=1,000.								

The 2nd antenna has the the exopod 1.1 times as long as the endopod. The

1st maxilla has 9 setae on the outer lobe, 9 setae on the exopod, 8 setae on the endopod, 5 setae on the 2nd basal, 4 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe, 12 setae on the 1st inner lobe. The 2nd maxilla has 5 small bud-like, and 3 long worm-like sensory filaments on the endopod (fig. e). The maxilliped slender (fig. f).

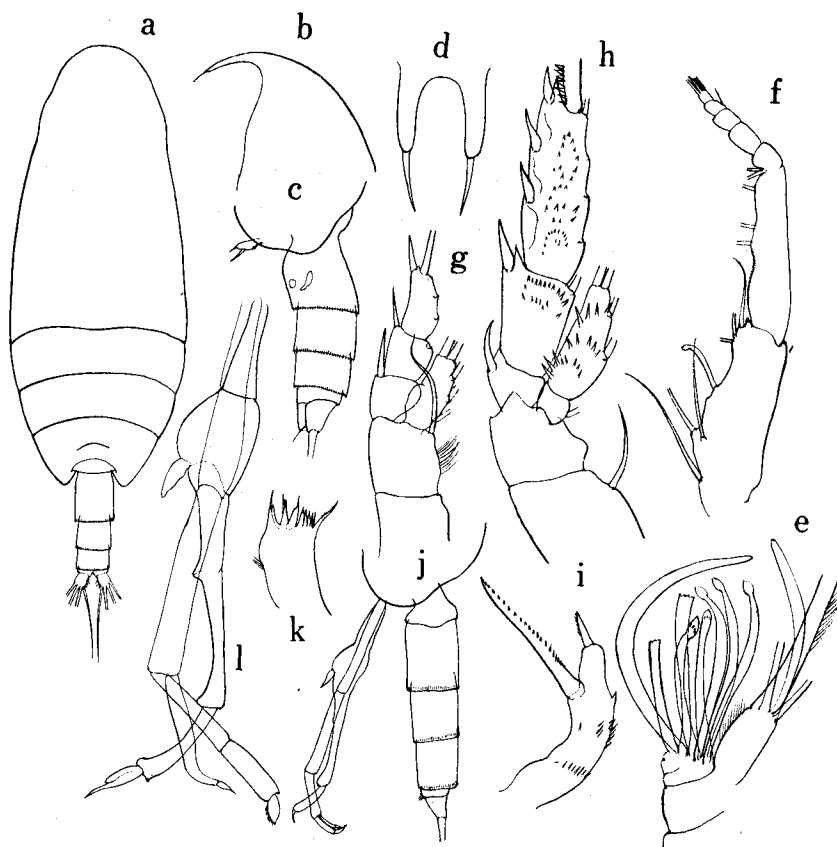


Fig. 139. *Scolecithricella gracilis* (G.O.SARS).

Female: a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 2nd maxilla; f, maxilliped; g, 1st leg, posterior aspect; h, 2nd leg; i, 5th leg. Male: j, last thoracic segment and abdomen, lateral aspect; k, biting blade of mandible; l, 5th pair of legs.

The 1st leg has 3-jointed exopod and 1-jointed endopod. The 1st segment of the exopod has an outer edge spine which exceeds the distal margin of the 2nd segment of the exopod (fig. g). The 2nd leg has a moderately long and curved outer edge spine on the 1st segment of the exopod; the 2nd segment of the exopod has a double row of spinules near the distal border; the terminal

spine of the exopod has 24 teeth (fig. h). The 3rd leg has 19 teeth on the terminal spine of the exopod.

The 5th pair of legs not articulated. The inner marginal spine is strong, and coarsely serrated along the anterior margin. The terminal spine is about $1/4$ the length of the inner marginal spine. The outer marginal spine is small, and arises opposite to the inner marginal spine. The segment is furnished with 2 groups of spinules (fig. f).

Male. Length, 4.06 mm: cephalothorax, 3.00 mm; abdomen, 1.06 mm. The cephalothorax is more slender than in the female. The head incompletely fused with the 1st thoracic segment; the line of fusion between the head and 1st thoracic segment is visible in the middorsal region. The rostral filaments rather short.

The abdomen 5-segmented. The segments and furca are in the proportional lengths as $15:29:25:20:3:8=100$. The 2nd to 4th segments are finely serrated on the distal border (fig. j).

The 1st antenna 21-jointed on the left side, reaches back to the end of the abdomen. The segments are in the following proportional lengths:

Segment	1	2	3	4	5	6	7	8-9	10-11-12	13	14	15	16	17
	40	36	22	22	27	27	27	54	76	36	40	54	64	68
	18	19	20	21	22	23	24-25							
	68	63	44	44	44	68	76	$=1,000$.						

The segment 20 and 21 are fused on the right side.

The 2nd antenna has the exopod about 1.3 times as long as the endopod. The 1st basal segment has a tuft of hairs on the posterior surface. The mandible has a broad 2nd basal segment; the biting part slender. The 2nd maxilla as in the female. The maxilliped slightly transformed.

The 1st to 4th swimming legs as in the female but the spinulation on the posterior surface of the various segments reduced.

The 5th pair of legs long, exceeds the end of the furca when fully reflexed. In the right leg the 1st segment of the exopod has a triangular process on the inner margin about the middle of the segment; the 2nd segment of the exopod has a small triangular process on the outer distal corner; the 3rd segment is lancetform. The endopod of the left leg is 2-jointed, and shorter than the 3-jointed exopod; the distal segment is provided with a small spine at the apex (fig. l).

Remarks. SEWELL is doubtful whether the form described by A. SCOTT (1906) from the Malay Archipelago is actually an example of this species. He says that A. SCOTT's specimen has in the 2nd leg a double row of spinules along the distal border of the 2nd segment. Further in the 5th pair of legs the small external marginal spine arises in A. SCOTT's example much nearer the proximal

end of the segment, and the portion of the ramus that is distal to the origin of the inner spine appears to be much longer. My example from the Izu region has a double row of spinules along the distal border of the 2nd segment of the exopod, but the 2nd row is irregularly arranged. The 5th pair of legs of my specimen is just as described by SEWELL (1947); the portion of the ramus distal to the origin of the inner marginal spine is short. Although the 5th pair of legs shows some times variations in the female of *Scolecithricella*. I think A. SCOTT is correct in regarding his example as *Scolecithricella gracilis* Sars.

Occurrence. 9 females and 6 males from deep water of the Izu region.

Distribution. The species has been recorded from both the deep and surface waters of the North Atlantic, near Azores, west coast of Ireland, and south of Iceland. In the Indo-Pacific from the Malay Archipelago, Arabian Sea, and Izu region.

Scolecithricella propinqua (G. O. Sars)

(Fig. 140, a-i; Fig. 141, a-j)

Scolecithricella propinqua, Sars, 1920, No. 377, p. 9; Sars, 1925, p. 178, pl. xlix, figs. 22-27;

Amalothrix propinqua, Wilson, 1950, p. 162, pl. 20, fig. 279.

Female. Length, 2.95 mm: cephalothorax 2.26 mm; abdomen, 0.69 mm. The head fused with the 1st thoracic segment. The 4th thoracic segment fused with the 5th. The cephalothorax elongate ovate, and moderately robust. The frontal margin of the head narrowly rounded in dorsal aspect (fig. a), and obtusely rounded when viewed from the lateral (fig. b). The lateral margin of the last thoracic segment rounded but there is a sudden change in outline along the dorso-lateral corner. The rostral rami robust, terminate in fine filaments.

The abdominal segments and furca are in the proportional lengths as 39:21:19:7:14=100. The genital segment as long as wide; the ventral surface slightly swollen below; there is a transverse row of minute spinules on the proximal part near the junction with the cephalothorax. The furcal rami slightly longer than wide.

The 1st antenna 23-jointed, extends to the distal end of the furca; the segments are in the following proportional lengths:

Segment	1	2	3	4	5	6	7	8-9	10	11	12	13	14	15	16	17
	54	48	24	24	24	24	24	46	24	22	24	38	40	48	56	56
	18	19	20	21	22	23	24-25									
	59	54	52	54	54	67	84	=1,000.								

The segments 14 and 18 have each a proximal seta.

The 2nd antenna has the exopod 1.2 times as long as the endopod. The mandible has no characteristic features. The 1st maxilla has 7 long and 2 short

setae on the outer lobe, 9 setae on the exopod, 5+3 setae on the endopod, 5 setae on the 2nd basal, 4 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe, and 13 setae on the 1st inner lobe. The 2nd maxilla has 5 bud-like filaments of about equal in size, and 3 long worm-like ones on the distal segments. In the maxilliped there is a tuft of hairs at the base of the bud-like sensory filament on the 1st basal segment, which arises from the middle of the external margin.

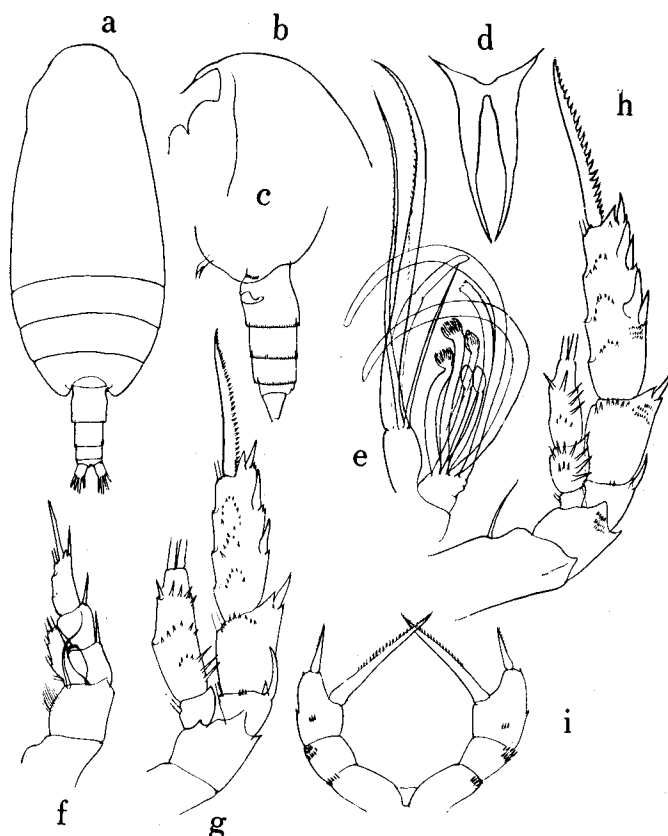


Fig. 140. *Scolecithricella propinqua* (G. O. Sars).
Female; a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 2nd maxilla; f, 1st leg; g, 2nd leg; h, 3rd leg; i, 5th pair of legs.

The 4th lobe has, beside 3 usual setae, a small rounded process near the distal border.

In the 1st leg the 1st segment of the exopod has an outer edge spine reaching the distal margin of the 2nd segment. The 2nd leg has on the 1st segment of the exopod a long and curved outer edge spine, exceeding the middle of the outer margin of the 2nd segment; the terminal spine of the exopod has 32 teeth.

(fig. g). The 3rd leg has 22 teeth on the terminal spine of the exopod.

The 5th pair of legs 3-jointed. The distal segment has a strong inner marginal spine which is coarsely denticulated along the anterior margin; the terminal spine is short, about $\frac{1}{3}$ the length of the inner marginal spine; there is on the outer margin a small spine at the base of the terminal spine, and a small outer marginal one opposite to the inner marginal spine. The posterior surface of the segments are furnished with a group of spines (fig. i).

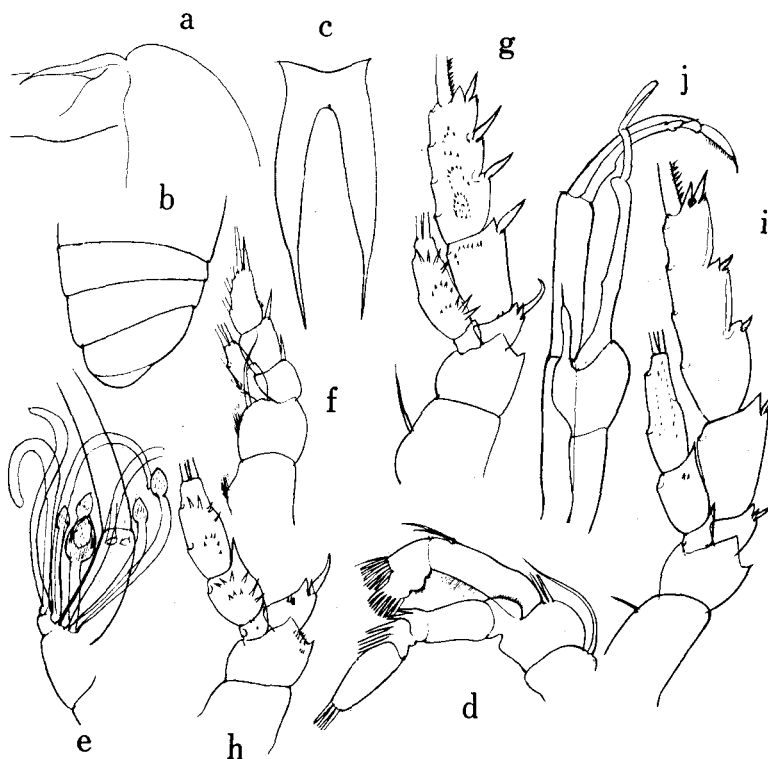


Fig. 141. *Scolecithricella propinqua* (G. O. Sars).

Male: a, head, lateral aspect; b, thoracic segments, lateral aspect; c, rostrum; d, 2nd antenna; e, 2nd maxilla; f, 1st leg, posterior aspect; g, 2nd leg; h, 3rd leg; i, 4th leg; j, 5th pair of legs.

Male. Length, 2.98 mm; cephalothorax, 1.98 mm; abdomen, 1.00 mm. The body ovate and moderately robust. The last two thoracic segments are incompletely fused; the line of fusion is clearly seen in lateral aspect (fig. b). The rostrum as in the female, but the basal rami much stronger (fig. 141, a).

The abdomen 5-segmented; the segments and furca are in the proportional lengths as 9, 32, 27, 25, 2, and 5 (=100). The 2nd and 3rd segments are fringed with fine teeth on the distal border. The furcal rami divergent, a little wider than long.

The 1st antenna 20-jointed on the left side, 19-jointed on the right side, they extend to the distal end of the 2nd abdominal segment; the proportional lengths of the segments are as follows:

Segment	1	2	3	4	5	6	7	8-9-10-11-12	13	14	15	16	17	18
	60	36	8	26	24	28	28	150	28	30	44	56	56	60
	19	20	21	22	23	24-25								
	56	48	48	44	81	89	=1,000.							

The segments 14, 18, 21, 22 and 25 have each a long seta. The proximal segments have well-developed aesthetascs.

The 2nd antenna has the exopod 1.2 times as long as the endopod; the 1st segment of the exopod is furnished with short hairs along the anterior margin. The mandible and 1st maxilla as in the female. The 2nd maxilla bears both vermiform and amalliform filaments on the distal segments (fig. e), one of the latter is much larger than the others.

In the 1st leg the 1st segment of the exopod has an outer edge spine, extending to the middle of the 2nd segment. The 2nd leg has on the 1st segment of the exopod an outer edge spine curved considerably at the distal end; the terminal spine of the exopod has 32 teeth (fig. g). The 3rd leg has on the 2nd basal segment rows of spinules along the anterior distal border where the exopod articulates with the 2nd basal segment. The terminal spine of the exopod has 20 teeth (fig. h).

Remarks. The present female specimen is larger in size than that described by Sars. His specimen measured 2.30 mm.

Occurrence. 4 females and 3 males from the deep water of the Izu region.

Distribution. The species has been recorded from the Atlantic by Sars, and from the Pacific in the region between Panay and Negros by Wilson, and from the Izu region (present record).

Scolecithricella emarginata (FARRAN)

(Fig. 142, a-o)

Scolecithrix emarginata, FARRAN, 1905, p. 36, pl. 8, figs. 6-17; *Scolecithrix inornata*, ESTERLY, 1906, p. 67, pl. ix, fig. 18; pl. xi, fig. 37, pl. xiii, figs. 65, 73; *Scolecithricella obtusifrons*, A. SCOTT, 1909, p. 92, pl. 31, figs. 1-9; *Scaphocalanus obtusifrons*, WITH, 1915, p. 194, text-fig. 61, pl. vii, viii; *Amallothrix emarginata*, Sars, 1925, p. 181, pl. 1, figs. 17-23; *Scolecithrix emarginata*, FARRAN, 1926, p. 264; *Scaphocalanus obtusifrons*, WILSON, 1932, p. 79, fig. 54; *Amallothrix emarginata*, JESPERSEN, 1934, p. 90; SEWELL, 1947, p. 158, text-fig. 42, A-F; *Amallothrix inornata*, BRODSKY, 1960, p. 260, fig. 168.

Female. Length, 4.25 mm: cephalothorax, 3.50 mm; abdomen, 0.75 mm. The body tapers somewhat anteriorly. The head fused with the thoracic segment,

The last two thoracic segments are fused, but the line of separation is observed when viewed from the lateral (fig. a, c). The head rounded in lateral aspect (fig. b). The postero-lateral margin of the last thoracic segment emarginate (fig. c). The rostrum is composed of a rather small basal to which 2 robust

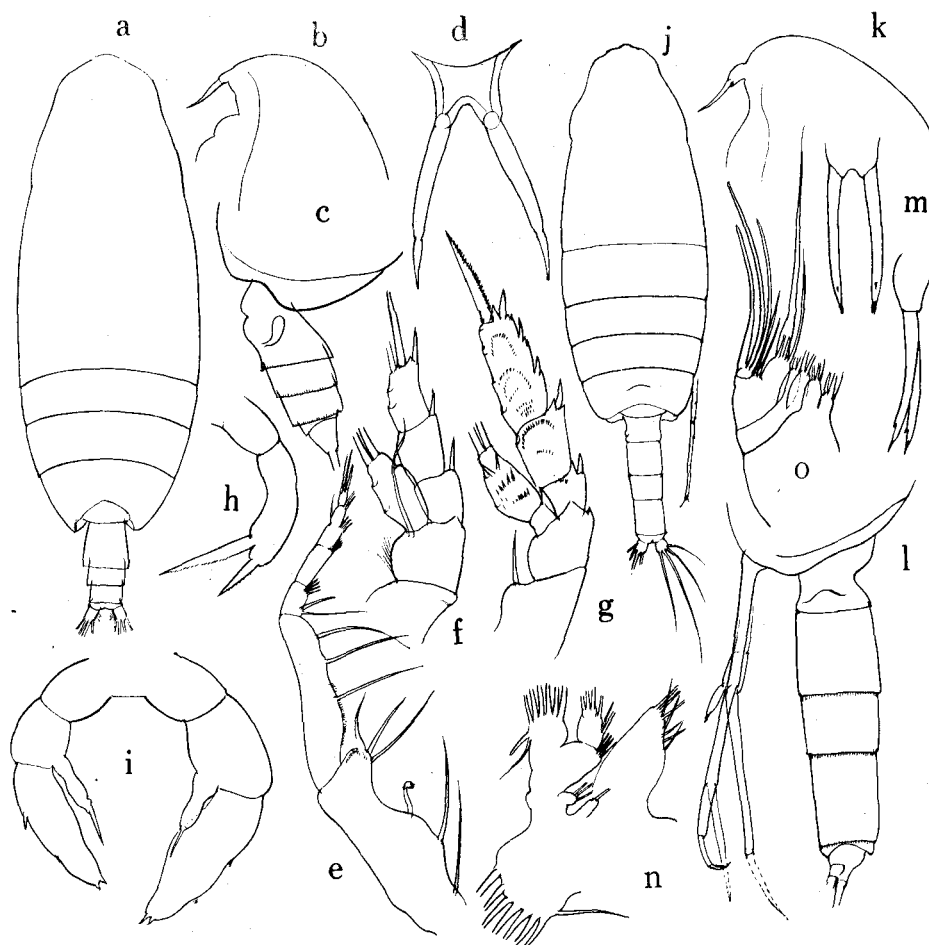


Fig. 142. *Scolecithricella emarginata* (FARRAN).

Female; a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen; lateral aspect; d, rostrum; e, maxilliped; f, 1st leg; g, 2nd leg; h, 5th leg; i, abnormal 5th pair of legs. Male: j, dorsal aspect; k, head, lateral aspect; l, last thoracic segment and abdomen, lateral aspect; m, rostrum; n, 1st maxilla; o, 2nd maxilla.

filaments are attached; the filament gradually attenuate, and notched at the apex (fig. d).

The abdominal segments and furca in the proportional lengths as 43, 21, 17, 2,

and 17 (=100). The genital segment slightly swollen below. The furcal rami about as long as wide.

The 1st antenna 23-jointed on the left side; 22-jointed on the right side; they exceed the end of the abdomen by terminal one segment; the segments are in the following proportional length:

Segment	1	2	3	4	5	6	7	8-9	10	11	12	13	14	15	16	17
	39	50	27	23	27	27	23	39	27	27	35	51	54	54	54	54
	18	19	20	21	22	23	24-25									
	54	51	54	51	51	63	66	=1,000.								

The 2nd antenna has the exopod 1.2 times as long as the endopod. The mandible has the exopod about as long as the endopod. The 1st maxilla has the following numbers of setae on the various segments: 9 setae on the outer lobe, 8 setae on the exopod, 7 setae on the endopod, 4 setae on the 2nd basal. The 2nd maxilla as in *S. gracilis* Sars. The maxilliped has a slender 2nd basal segment and endopod; the 2nd segment of the endopod is as long as the combined lengths of the following 2 segments (fig. e).

The 1st leg has on the 1st segment of the exopod an outer edge spine which is slightly longer than half the length of the outer margin of the 2nd segment; the 1st basal segment has a slight notch on the outer distal margin (fig. f). In the 2nd leg the outer edge spine of the 1st segment of the exopod is short and straight, not attaining to the proximal 1/3 of the outer margin of the 2nd segment of the exopod; the 1st basal segment has a notch on the distal 1/3 of the outer margin; the terminal spine of the exopod finely serrated, and has about 60 teeth. In the 4th leg the posterior surface is densely covered with groups of minute spines on the segments of the exopod and endopod.

The 5th pair of legs has one free joint attached to the basal. The terminal segment has on inner marginal spine which is 2 times as long as the terminal spine. The terminal spine is set closely to the inner marginal spine (fig. h). The 5th pair of legs of this species shows a considerable degree of variation: a specimen measuring 4.20 mm had an abnormal 5th pair of legs which has a rudimentary endopod (fig. i); the another specimen measuring 4.45 mm had a 5th pair of legs having 2 more spines on the outer margin, one on the opposite of the inner marginal spine, and the another at the base of the terminal spine.

Male. Length, 3.94 mm; cephalothorax. 2.88 mm; abdomen, 1.05 mm. The abdomen is contained 2.6 times in the length of the cephalothorax. The cephalothorax elongate ovate. The last two thoracic segments are fused, the line of fusion is seen along the postero-lateral margin. (fig. l). The posterior margin of the last thoracic segment slightly emarginate. The rostrum as in the female, but the basal part produced ventrally, and the filament has a small pointed process near the distal end; the apex of the filament is deeply notched (fig. m, n).

The abdomen 5-jointed; the segments and furca are in the proportional lengths as 16, 24, 19, 29, 5, and 7 (=100). The furcal rami divergent, about as long as wide.

The 1st antenna 20-jointed on the left side, 19-jointed on the right side; they extend to the distal margin of the anal segment; the segments 8 to 12 are fused, but the line of fusion is observed between the segment 9 and 10; the segment 13 has an indentation on the posterior distal margin; the segment 14 and 15 form obtuse angle.

The 2nd antenna has the exopod slightly longer than the endopod (30:26). The mandible has a robust 2nd basal segment; the exopod slightly longer than the endopod (10:9). The 1st maxilla as in the female except the reduction of the 1st and 2nd inner lobe (fig. n). The 2nd maxilla reduced; the setae on the segments of the endopod slender. The maxilliped has the basal segments of equal lengths.

In the 1st leg the 1st basal segment is smooth on the outer margin; the outer edge spine on the 1st and 2nd segments of the exopod are short. The 2nd leg has a slight notch on the distal 1/3 of the outer margin of the 1st basal segment; the outer edge spine of the 1st segment of the exopod is short and straight, about 1/3 the length of the outer margin of the 2nd segment; the terminal spine of the exopod has 50 teeth. The arrangement of the spinules on the posterior surface of the 2nd segment of the endopod as in the female, and differs from that figured by Sars (1925, pl. L, fig. 20): the 2nd row of spinules are more in number, whereas, in Sars' figure the 2nd row is composed of only 2 large spinules. The 3rd and 4th legs have each 39 and 35 teeth on the terminal spine of the exopod.

The 5th pair of legs resembles that of *Amallothrix obtusifrons* Sars. The segments are all slender. In the present specimen the distal segments of the right leg and the endopod of the left leg are missing. The exopod of the left leg is more slender than that of *A. obtusifrons* (fig. 1).

Remarks. *Scolecithricella emarginata* (Farran) and *Amallothrix obtusifrons* Sars resemble each other so closely that a considerable confusion has arisen regarding the nomenclature of the species. *A. obtusifrons* is larger in size, and is rounded on the postero-lateral margin of the last thoracic segment. In the 5th leg the inner marginal spine arises much apart from the apical spine in *obtusifrons*, whereas, it arises very near to the apical in *emarginata*. The male of *S. emarginata* has not been reported. On comparing the appendages of the present male specimen with those of the female specimen of *S. emarginata*, and with the male 5th pair of legs of *A. obtusifrons* Sars, I am inclined to regard the present male specimen as *S. emarginata*. With's specimen measured 3.84 mm, Sars' 4.00 mm, and Wilson's 3.75–4.25 mm. *Scolecithrix inornata* Esterly measured 4.3 mm in the female, and the 5th pair of legs just as that of the present specimen. *Scolecithrix*

thricella aequalis WOLFENDEN measured 3.65 mm in the female, appears to be identical with the present species.

Occurrence. 14 females and 1 male from the deep water of the Izu region. The male was obtained in the vertical haul from 1400-1000 m in Suruga Bay.

Distribution. The species has a wide distribution in the oceans, and been recorded in the Atlantic from the Faroe-Iceland Channel, off south of Iceland, Denmark Strait, west coast of Iceland, Woods Hole region, Bay of Biscay. In the Pacific from the Malay Archipelago, San Diego region, and Izu region. In the Indian Ocean from the Arabian Sea and Laccadive Sea.

Scolecithricella valida (FARRAN)

(Fig. 143, a-l)

Scolecithrix valida, FARRAN, 1908, p. 55, pl. v, vi; *Scolecithricella valida*, A. SCOTT, 1909, p. 92, pl. 32; *Scaphocalanus validus*, WITH, 1915, p. 198, pl. 7, fig. 11; text-fig. 62; *Amallothrix valida*, SEWELL, 1929, p. 217, text-fig. 80; JESPERSEN, 1932, p. 90; *Scolecithricella valida*, WILSON, 1932, p. 78, fig. 53; *Amallothrix valida*, BRODSKY, 1950, p. 260, text-fig. 169; VERVOORT, 1957, p. 107.

Female. Length, 4.36 mm; cephalothorax, 3.30 mm; abdomen, 1.06 mm. The cephalothorax and abdomen are in the proportional lengths as 76 to 24. The cephalothorax robust and oval in outline (fig. a). The last thoracic segment rounded on the lateral corner, but slightly produced on the posterior corner (fig. c). The rostrum bifurcate, has robust basal portion to which terminal filaments are attached; the filament divided at the apex (fig. d).

The abdomen 4-segmented; the segments and furca are in the proportional lengths as 36, 24, 23, 7, and 10 (=100). The genital segment not swollen below. The furcal rami 1.2 times as long as wide.

The 1st antenna 23-jointed on the left side, 22-jointed on the right side, extend to the middle of the 2nd abdominal segment; the proportional lengths of the segments are as follows:

Segment	1	2	3	4	5	6	7	8-9	10	11	12	13	14	15	16	17
	46	42	23	23	26	26	26	47	21	21	21	37	39	46	60	63
	18	19	20	21	22	23	24-25									
	60	56	58	60	49	70	79	=1,000.								

The 2nd antenna has the exopod 1.1 times as long as the endopod. The 1st maxilla has 9 setae on the outer lobe, 9 setae on the exopod, 8 setae on the endopod, 5 setae on the 2nd basal, 2 setae on the 2nd inner lobe, and 4 setae on the 3rd inner lobe. The 2nd maxilla has 5 bud-like and 3 worm-like sensory filaments on the distal segments. The maxilliped has the 1st basal segment

which is about as long as the 2nd; the 1st basal has an amalliform filament on the anterior margin about the middle.

The 1st leg has a slender outer edge spine on the 1st and 2nd segments of the exopod; the spine on the 1st segment is as long as the outer margin of the 2nd segment. (fig. e). The 2nd leg is as described by FARRAN; the number of

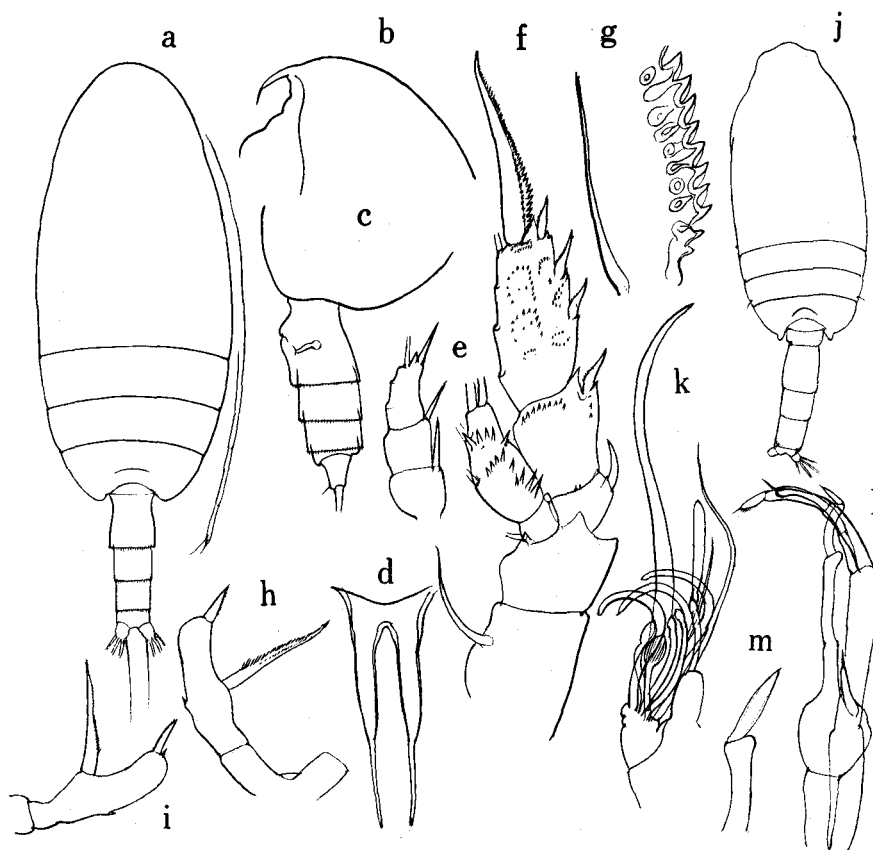


Fig. 143. *Scolecithricella valida* (FARRAN).

Female: a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 1st leg; f, 2nd leg; g, proximal pair of terminal spine of exopod of 2nd leg; h, 5th leg; i, 5th leg, other specimen. Male: j, dorsal aspect; k, 2nd maxilla; l, 5th pair of legs; m, distal segment of exopod of right 5th leg.

teeth on the terminal spine of the exopod is about 41; and the spine forms fenestella (fig. g). The outer edge spine on the 1st segment of the exopod reaches the middle of the outer margin of the 2nd segment, and the spine is curved (fig. f). The 3rd leg has the terminal spine of the exopod similar in structure to that of the 2nd leg.

The 5th pair of legs as described and figured by FARRAN. The inner marginal spine arises from about the middle of the distal segment. The spine is rather coarsely serrated on the anterior margin and the teeth are arranged in a slightly twisted line. The outer marginal spine is small, situated just to the opposite to the inner marginal spine (fig. h). A specimen measuring 4.07 mm had the 5th pair of legs furnished with usual spines, a small spine at the base of the apical spine (fig. i).

Male. Length, 4.64 mm: cephalothorax, 3.20 mm; abdomen, 1.44 mm. The cephalothorax elongate ovate in outline, less robust than in the female. The articulation between the 4th and 5th thoracic segments is clearly observed from the lateral (fig. j). The rostrum as in the female.

The abdominal segments and furca are in the proportional lengths as 12, 38, 20, 23, 2, and 5 (=100). The 2nd to 4th segments are fringed with fine teeth on the distal margin. The furcal rami divergent, as long as wide.

The 1st antenna 20-jointed on the right side, extends about to the end of the cephalothorax. The distal segment missing in the specimen dissected; the remaining segments are in the following proportions:

Segment	1	2	3	4	5	6	7	8-9-10-11-12	13	14	15	16	17	18
	25	18	10	11	11	11	12	46	11	11	17	22	23	24
	19	20-21	22	23	24-25									
	24	37	17	23	?									

the segments 8-12 are completely fused; the segments 20 and 21 are fused on the right side; the segments 14 and 15 form obtuse angle.

The 2nd antenna has the exopod 1.3 times as long as the endopod; the 1st segment of the exopod is furnished with short hairs on the anterior proximal corner. The mandible has a robust 2nd basal segment. The 1st maxilla as in the female. The 2nd maxilla has 3 long vermiform and 5 amalliform sensory filaments on the distal segment; the 5th lobe has a long and strong spine (fig. k). The maxilliped has the basal segments which are more robust than those of the female.

In the 1st leg the outer edge spine on the 1st segment of the exopod is slender, reaching the base of the outer edge spine of the 2nd segment. In the 2nd leg the outer edge spine on the 1st segment of the exopod reaches the middle of the outer margin of the 2nd segment, and slightly curved. The terminal spine of the exopod has 48 teeth; the spine makes fenestella. The 3rd leg has the terminal spine of the exopod provided with fenestella.

The 5th pair of legs has a general resemblance to that of *A. gracilis* Sars, but much shorter, reaching back to the middle of the 3rd abdominal segment when reflexed. The endopod of the right leg is short, and is furnished with a small spine on the apex. The exopod and endopod of the 1st leg are subequal

in lengths; the terminal segment of the exopod is furnished with a small spine at the apex and comb-like hairs on the inner margin (fig. 1). The distal segment of the exopod of the right leg lancet-form (fig. m).

Remarks. The species shows a considerable variation in size: FARRAN's specimen from the North Atlantic, 3.8-3.9 mm; those from the Antarctic, 4.06 mm; A. SCOTT's specimen from the Malay Archipelago, 3.24 mm; WITH's from the North Atlantic, 3.95 mm; SEWELL's specimen from the Indian Seas, 2.66 mm. The present specimen, though much larger in size than those hitherto been recorded, agrees well with the description and figures given by FARRAN. SEWELL's specimen, though much smaller in size than those from the North Atlantic, agrees fairly well with the present specimen except the difference in the proportional lengths of the abdominal segments and furca; SARS' specimen has the proportional lengths as 41, 21, 17, 4, and 7. An example from the Izu region measuring 4.06 mm in lengths had the proportional length of the cephalothorax to abdomen as 52 to 13. SARS' specimen of *A. valida* appears somewhat differs from those described by FARRAN or SEWELL in minute points of structure which will be given in the following.

Occurrence. 8 females and 7 moles from Sagami Bay in the vertical hauls from 1000 t-0 m.

Distribution. This species has been recorded from the deep waters of the North Atlantic, Pacific, and Indian Oceans, and also from the Antarctic and Far Eastern and Polar Seas of the U.S.S.R.

Scolecithricella paravalida BRODSKY

(Fig. 144, a-k)

Amallothrix valida, SARS, 1925, p. 186, pl. LI, figs. 22-28; *Amallothrix paravalida*, BRODSKY, 1950, p. 262, fig. 171; *Scolecithricella sarsi*, TANAKA, 1953, p. 133.

Female. Length, 2.70 mm: cephalothorax, 2.01 mm; abdomen, 0.69 mm. The cephalothorax and abdomen are in the proportional lengths as 74 to 26. The head fused with the 1st thoracic segment; the last two thoracic segments are incompletely fused; the line of fusion is seen from the dorsal (fig. a). The lateral corner of the last thoracic segment. The frontal margin of the head evenly rounded when viewed from the dorsal, and obtusely rounded from the lateral (fig. b). The lateral corner of the last thoracic segment slightly produced on the posterior margin in lateral aspect (fig. c). The rami of the rostrum robust attenuate suddenly into fine filament at the distal half (fig. d).

The abdominal segments and furca are in the proportional lengths as 34, 24, 21, 8, and 13 (=100). The genital segment not swollen below. The first three segments are fringed with fine teeth on the distal margin. The furcal rami 1.7 times as long as wide; the 2nd inner seta is very long.

The 1st antenna 23-jointed on the left side, 22-jointed on the right side, extend when reflexed to the end of the 3rd abdominal segment; the segments are in the following proportions:

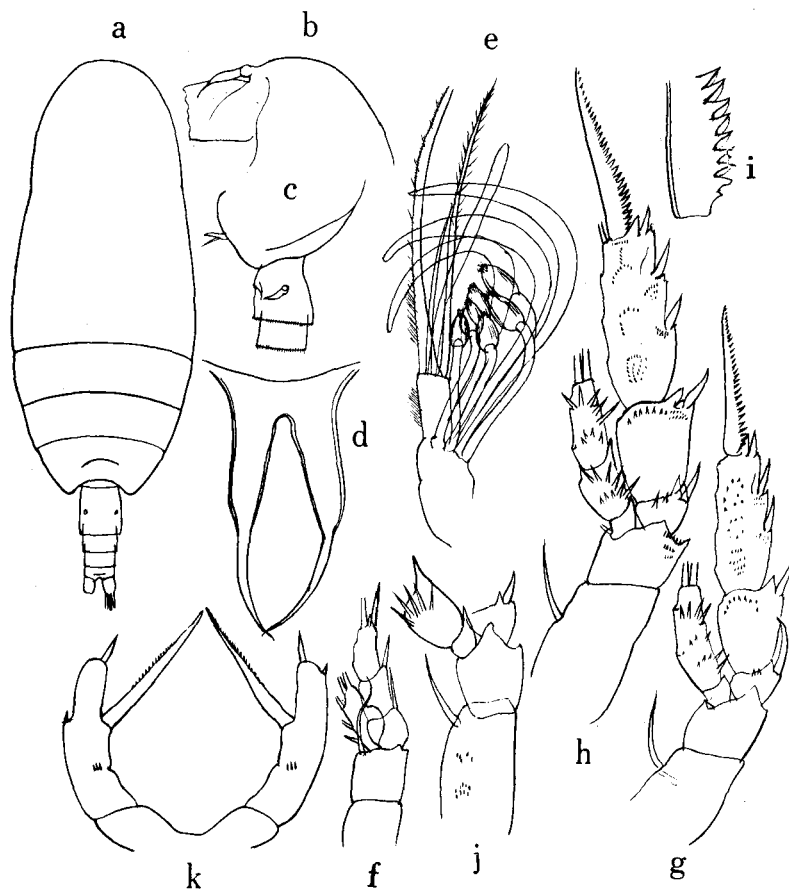


Fig. 144. *Scolecithricella paravalida* (BRODSKY).

Female; a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 2nd maxilla; f, 1st leg; g, 2nd leg; h, 3rd leg; i, proximal part of terminal spine of exopod of 3rd leg; j, 4th leg; k, 5th pair of legs.

Segment	1	2	3	4	5	6	7	8-9	10	11	12	13	14	15	16	17
	57	50	25	25	25	25	25	53	21	21	21	36	39	46	57	57
	18	19	20	21	22	23	24-25									
	57	53	53	57	46	67	84	=1,000.								

remarkable seta and aesthetask on the segments 3, 7, 9, 14, 18, and 25; the segment 10 has a distal seta, and the segment 15 has a distal spine.

The 2nd antenna has the exopod 1.2 times as long as the endopod. The 2nd maxilla has 6 bud-like filaments of about equal in size, and 3 vermiform filaments on the endopod (fig. e). The other mouth organs as in *S. valida* FARRAN.

The 1st leg has a long outer edge spine on the 2nd segment of the exopod, exceeding the base of the spine on the 2nd segment (fig. f). The 2nd leg has the outer edge spine on the 1st segment of the exopod, which is far longer in proportion to that of *S. valida*; the terminal spine of the exopod has 29 teeth; the teeth are rather coarse, and are connected by a sort of lamella but do not make fenestella (fig. g). The 3rd leg has 30 teeth on the terminal spine of the exopod, and is similar in structure to that of the 2nd foot (fig. h, i). The 4th leg has scattered spinules on the posterior surface of the 1st basal segment; the outer margin is furnished with short hairs; the inner marginal seta is rather long; the terminal spine of the exopod has 41 teeth. (fig. j)

The 5th pair of legs has a free segment attached to the 1-jointed basal segment; the distal segment has an inner marginal spine furnished with fine teeth arranged in a straight line. The apical spine is rather delicate. The outer marginal spine is situated opposite to the inner marginal spine on the right leg and near to the apical spine on left leg. Several spinules are observed on the posterior surface near the inner margin midway between the base of the inner marginal spine and the distal border of the basal segment; these spinules are entirely absent in *S. valida*.

Remarks. SARS (1925) described a female of *Scolecithricella* under the name *Amallothrix valida* which closely resembles *S. valida* FARRAN. But on closer examination it differs from *S. valida*. FARRAN (1929) mentions in his description of the species "it is improbable that SARS' record refers to this species". His specimen measured 2.1 mm. and had a large curved spine on the 1st point of the exopod of the 2nd foot. In *S. valida* this spine, though curved, is much shorter than in SARS'. SEWELL (1929) in the description of *S. valida* says on the structure of rostrum that SARS' figures this terminal filament as being remarkably short.

In my collection there occurred 3 female examples just identical with the species which SARS referred to *A. valida*. The specimen differs from *S. valida* FARRAN in the following: 1) smaller in size; 2) the length of the 1st antenna; in *S. valida* FARRAN the 1st antenna is short, only attaining to the end of the 2nd abdominal segment, whereas, in the present specimen it reaches back to the end of the 3rd abdominal segment; SARS' has a longer antenna extending to the end of the abdomen; 3) the length of the outer edge spine on the 1st segment of the exopod of the 2nd leg; 4) the structure of the serration on the terminal spine of the exopod of the 2nd and 3rd legs. *Amallothrix valida* SARS is not identical with *Scolecithrix valida* FARRAN. BRODSKY's specimen measuring 2.5 mm. has the 5th pair of leg quite similar in structure to that of the present specimen which was listed under the name *S. Sarsi* by TANAKA in 1953.

Occurrence. 3 females from Sagami Bay in the hauls from 1000 m to the surface.

Distribution. The species has been recorded by Sars from the deep water of the temperate Atlantic, North-west Pacific (present record), and Far-eastern and Polar Seas of the U.S.S.R.

Scolecithricella arcuata (G. O. Sars)

(Fig. 145, a-l)

Amalothrix arcuata, Sars, 1925, p. 185, pl. LI, figs. 14-21; SEWELL, 1929, p. 217; SEWELL 1947, p. 155, text-figs. 40, A-E; 41, A-j; WILSON, 1950, p. 159, p. 2, figs. 7, 8.

Female. Length, 2.49 mm: cephalothorax 1.94 mm; abdomen, 0.55 mm. The cephalothorax and abdomen are in the proportional lengths as 78 to 22. The head fused with the 1st thoracic segment. The last two thoracic segments are incompletely fused; the line of fusion is observed from the dorsal (fig. a). The frontal margin of the head rounded in dorsal view, and obtusely rounded in lateral aspect (fig. b). The lateral corner of the last thoracic segment rounded, but slightly produced on the posterior margin (fig. c). The rostrum as in *S. valida* (FARRAN) (fig. d).

The abdominal segments and furca are in the proportional lengths as 40, 20, 17, 8, and 15. The genital segment swollen slightly below. The furcal rami as long as wide. The first three segments are fringed with fine teeth on the distal margin.

The 1st antenna 23-jointed on the left side, 22-jointed on the right side, extend to the end of the 3rd abdominal segment. The segments are in the following proportional lengths:

Segment	1	2	3	4	5	6	7	8-9	10	11	12	13	14	15	16	17
	55	40	22	22	22	22	26	40	22	22	26	36	40	44	55	59
	18	19	20	21	22	23	24-25									
	62	59	55	59	55	70	87	=1,000.								

In the 2nd antenna the exopod is 1.3 times as long as the endopod. The 1st maxilla has 9 setae on the outer lobe, 9 setae on the exopod, 8 setae on the endopod, 5 setae on the 2nd basal segment, 4 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe. The 2nd maxilla and maxilliped as those of *S. propinqua* (Sars).

The 1st leg has an outer edge spine on the 1st segment of the exopod (fig. e). In the 2nd leg the outer edge spine of the 1st segment of the exopod is long and curved furnished with minute teeth on the inner margin. The terminal spine of the exopod has 27 teeth (fig. f). In the 3rd leg the outer edge

spine of the 1st segment of the exopod as in the 2nd leg; the terminal spine of the exopod has 22 teeth; the 2nd basal segment is furnished with 2 rows of spinules on the anterior distal border (fig. g). The 4th leg has a short and straight inner marginal seta on the 1st basal segment; the terminal spine of the exopod has about 51 teeth.

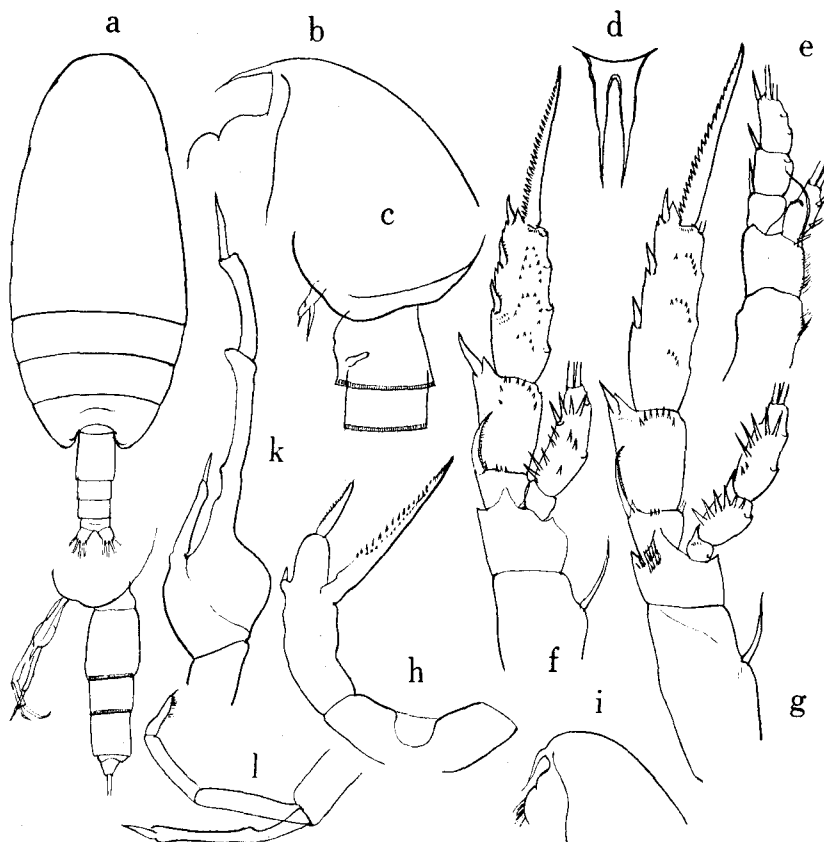


Fig. 145. *Scolecithricella arcuata* (G. O. Sars).

Female; a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 1st leg; f, 2nd leg; g, 3rd leg. Male: i, head, lateral aspect; j, last thoracic segment and abdomen, lateral aspect; k, right 5th leg; l, exopod and endopod of left 5th leg.

The 5th pair of legs 2-jointed. The terminal segment has a strong inner marginal spine on the distal 1/3 of the inner margin; the spine is furnished with 2 rows of denticles along the anterior margin. The terminal spine is about 1/3 the length of the inner marginal spine, and is finely serrated on the anterior margin. The outer marginal spine is short, and arises somewhat obliquely to the inner marginal spine (fig. h).

Male. Length, 2.94 mm: cephalothorax, 2.06 mm; abdomen, 0.88 mm. The cephalothorax moderately robust. The frontal margin of the head slight by produced. The lateral corner of the last thoracic segment rounded, and slightly produced on the ventro-lateral margin (fig. j). The rostrum as in the female (fig. i).

The abdominal segments and furca are in the proportional engths as 12, 33, 20, 21, 4, and 10. The furcal rami a little longer than wide.

The 1st antenna 19-jointed on the right side, extends to the middle of the 2nd abdominal segment. The segments are in the following proportional lengths:

Segment	1	2	3	4	5	6	7	8-9-10-11-12	13	14	15	16	17	18
	59	65	37	26	28	22	26	114	24	41	39	54	55	55
	19	20-21	22	23	24-25									
	61	89	45	73	87	=1,000.								

The 1st segment is furnished with a transverse row of hairs on the distal border. The proximal segments are each provided with well-developed aesthetascs. The segments 13 and 14 are separated. The segments 14 and 15 make obtuse angle.

In the 2nd leg the outer edge spine of the 1st segment of the exopod is long and curved and is furnished with fine teeth along the inner margin as in the female. The 3rd leg has also a long outer edge spine on the 1st segment of the exopod, but the spine is devoid of fine teeth on the inner margin.

The 5th pair of legs reaches back to the middle of the 4th abdominal segment. The endopod of the right leg moderately long. The exopod of the left leg is longer than the endopod; the inner margin of the 1st segment of the endopod produced triangularly at the proximal 1/3 of the segment.

Remarks. SEWELL's specimen from the Arabian Sea measured 2.49 mm in the female.

Occurrence. 4 females from Sagami and Suruga Bays, 1 male from Sagami Bay in the hauls from the depth 1000 m to the surface.

Distribution. The species has been recorded from the warm Atlantic, Indian Seas, Arabian Sea, and North-west Pacific (present record).

Scolecithricella lamellifer sp. nov.

(Fig. 146, a-m)

Female. Length, 2.40 mm: cephalothorax, 1.90 mm; abdomen, 0.50 mm. The cephalothorax and abdomen are in the proportional lengths as 80 to 20. The head fused with the 1st thoracic segment. The last two thoracic segments are incompletely fused; the line of fusion between the segments is faintly visible both from the dorsal and lateral aspects. The frontal margin of the head slightly produced in dorsal aspect (fig. a), and obtusely rounded when viewed from the

lateral (fig. b). The lateral corner of the last thoracic segment broadly rounded, but slightly produced at the distal margin in lateral aspect (fig. c). The rostrum is composed of a short basal portion to which strong spines are attached; the length of the spine is about 3 times the depth of the excavation (fig. d).

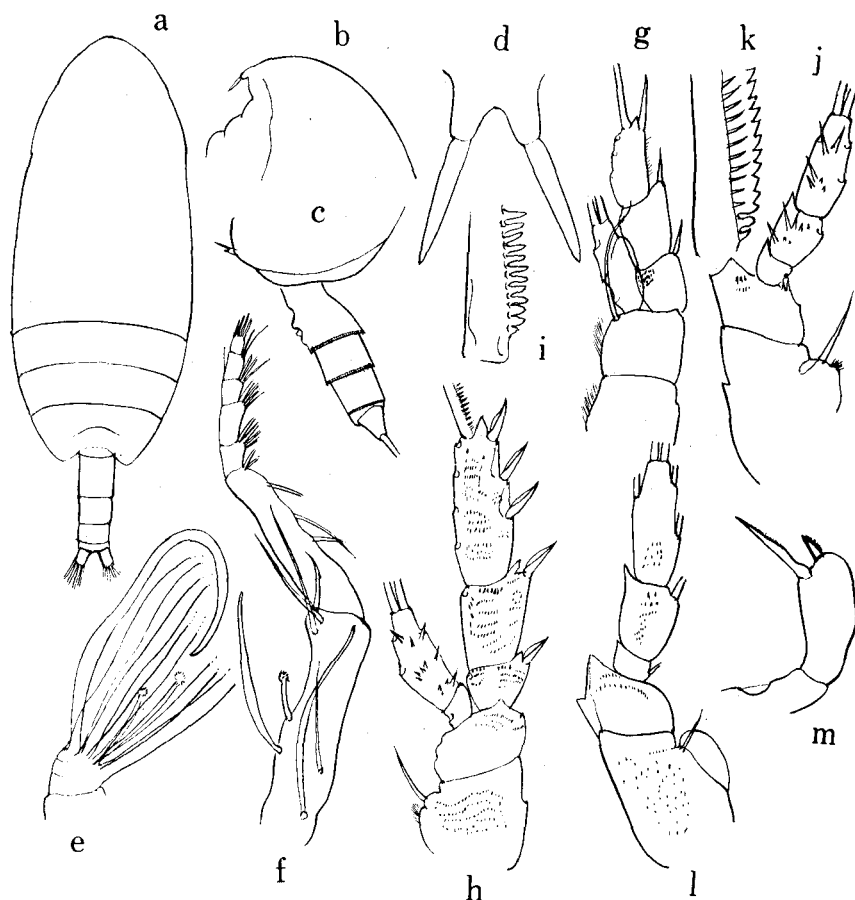


Fig. 146. *Scolecithricella lamellifer* sp. nov.

Female; a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 2nd maxilla; f, maxilliped; g, 1st leg; h, 2nd leg; i, proximal part of terminal spine of exopod of 2nd leg; j, 3rd leg; k, proximal part of terminal spine of exopod of 3rd leg; l, 4th leg; m, 5th leg.

The abominal segments and furca are in the proportional lengths as 33, 19, 23, 9, and 16 (=100). The genital segment sinuate on the ventral surface (fig. c). The first three segments are striated with fine teeth on the distal border. The furcal rami 1.5 times as long as wide.

The 1st antenna 23-jointed on the left side, extends to the end of the 3rd

abdominal segment; the segments are in the following proportional lengths:

Segment	1	2	3	4	5	6	7	8-9	10	11	12	13	14	15	16	17
	60	40	24	24	24	24	24	36	24	28	36	48	48	48	52	48
	18	19	20	21	22	23	24-25									
	52	50	57	55	48	65	85	=1,000.								

The segment 10 has no seta; the segments 12, 14, and 18 had each two setae; the segments 7, 9, 12, 14, and 19 have each a long aesthetascer.

The 2nd antenna has the exopod 1.7 times as long as the endopod. The 1st segment of the exopod has a knob on the anterior margin about the middle of the segment as is found in *Amalothrix indica* SEWELL. The 1st maxilla has 9 setae on the outer lobe, 9 setae on the exopod, 5 setae on the segments 3-2, 3 setae on the segment 1 of the endopod, 5 setae on the 2nd basal, 3 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe. The maxilla has 6 long vermiform filaments and 2 small amalliform ones on the endopod (fig. e). The maxilliped has a small amalliform, and 2 long vermiform filaments on the 1st basal segment (fig. f).

In the 1st leg the outer edge spine on the 1st segment of the exopod is short, not attaining to the middle of the outer margin of the 2nd segment; there is a group of minute spinules on the inner distal corner of the 1st segment of the exopod (fig. g). In the 2nd leg (fig. h) the 1st basal has a ridge on the outer margin; the inner marginal seta is situated on the well marked projection. The inner margin of the 2nd basal segment sinuate, and is furnished with short hairs on the distal half. The posterior surface of the basal segments is densely provided with small spinules. The outer edge spine on the 1st segment of the exopod is short and straight, about half the length of the outer margin of the 2nd segment. The terminal spine of the exopod has about 40 teeth; the teeth are not connected with a sort of lamella (fig. i). The posterior surface of the exopod is densely furnished with minute spinules. The endopod is provided with rather large spinules on the posterior surface. The 3rd leg has also a ridge on the outer margin of the 1st basal segment. The 2nd basal has a small process and 2 spinules on the inner margin. The 1st and 2nd basal segments are furnished with minute spinules on the posterior surface. The terminal spine of the exopod has 42 teeth and they make fenestellae (fig. j, k). In the 4th leg (fig. l) the 1st basal segment has a transparent swelling, oval in shape, on the inner distal margin; the inner marginal setae short; the 2nd basal segment has a ridge running distally from the distal angle of the 1st basal; the 1st and 2nd basal segments are furnished with minute spinules. The terminal spine of the exopod has about 43 teeth which form fenestellae.

The 5th pair of legs 2-jointed; the distal segment dilated distally, and has a short apical spine and a inner marginal spine which is 4 times as long as the

apical one: these two spines are closely set. The apical spine is finely toothed on either side (fig. m).

Remarks. The present species is closely allied to *Scolecithrix laminata* FARRAN in the structure of the mouth parts and also in the 1st to 3rd legs. But in the 2nd leg the spinules on the posterior surface of the 1st segment of the exopod is entirely absent in *S. laminata*. The lamellous swelling on the inner margin of the 1st basal segment of the 4th leg is very characteristic in the present species. The 5th pair of legs differs from that of *S. laminata* in the proportions of length to width.

Occurrence. One female from the deep water of the Izu region.

Distribution. North-west Pacific (present record).

Scolecithricella spinata sp. nov.

(Fig. 147, a-j)

Female. Length, 1.77 mm: cephalothorax, 1.41 mm; abdomen, 0.36 mm. The cephalothorax and abdomen are in the proportional lengths as 80 to 20. The body elongate ovate. The head fused with the 1st thoracic segment. The last two thoracic segments incompletely fused; the line of fusion between the segments are seen in dorsal aspect. The frontal margin of the head evenly rounded both in dorsal and lateral aspects (fig. a, b). The postero-lateral margin of the last thoracic segment narrowly rounded (fig. c). The rostrum as that of *S. valida* FARRAN, but the terminal filaments are much shorter (fig. d).

The abdomen 4-segmented; the segments and furca are in the proportional lengths as 48, 16, 15, 5, and 16. The genital segment slightly swollen below. The furcal rami 1.2 times as long as wide.

The 1st antenna broken off in the specimen dissected in the distal segments. The segments 1-15 are in the following proportions:

Segment	1	2	3	4	5	6	7	8-9	10	11	12	13	14	16
	13	11	5	5	5	5	5	10	4	3.5	4	6.5	7	8.5

The 2nd antenna has the exopod 1.4 times as long as the endopod. The 1st segment of the exopod has no knob on the anterior margin. The 1st maxilla has 9 setae on the outer lobe, 8 setae on the exopod, 5 setae on the endopod 2-3, 3 setae on the endopod 1, 5 setae on the 2nd basal segment, 4 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe. The 2nd maxilla has 3 vermiform and 4 amalliform sensory filaments on the segments of the endopod (fig. e). The maxilliped as that of the foregoing species; there is a row of spinules on the anterior margin of the 2nd basal extending to the middle of the segment; the segment of the endopod are rather short (fig. f).

In the 1st leg the outer edge spines on the segments of the exopod are slender;

the 1st segment of the exopod has the spine which is as long as the outer margin of the 2nd segment (fig. g). The 2nd leg has a long and curved spine on the 1st segment of the exopod; the proximal half of the outer margin of the 1st basal segment is swollen; the 2nd and 3rd segments of the exopod unfortunately missing. In the 3rd leg the 1st basal segment is furnished with rather long

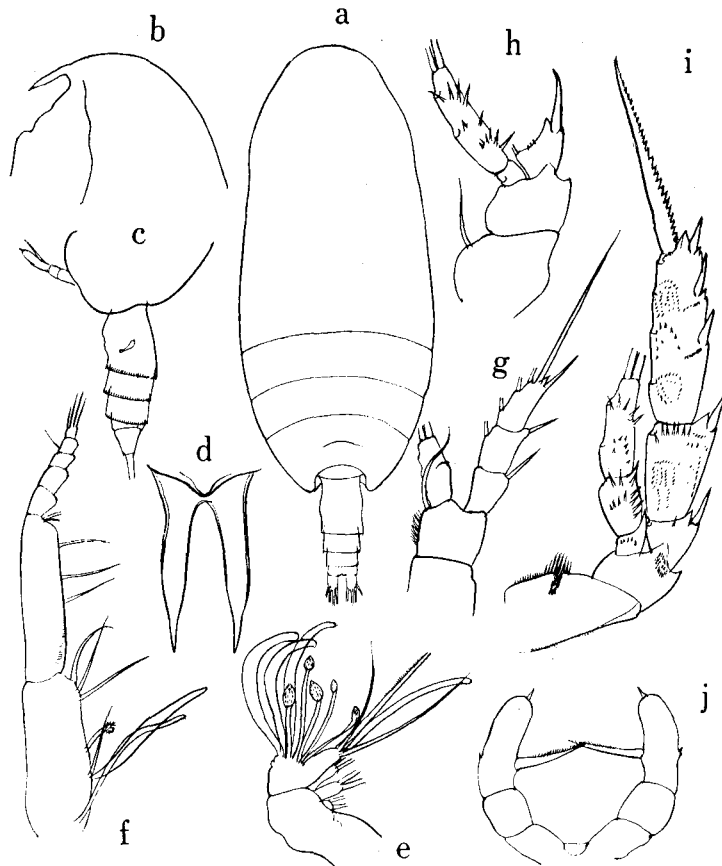


Fig. 147. *Scolecithricella spinata* sp. nov.

Female; a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 2nd maxilla; f, maxilliped; g, 2nd leg; h, 3rd leg; i, 5th pair of legs; j, 5th pair of legs.

spinules on the basal region of the inner marginal seta, and both the inner and outer margins of the segment are provided with minute denticles. The posterior surface of the exopod and endopod is covered with groups of minute spines as shown in the figure (fig. i). The terminal spine of the exopod coarsely toothed; the number of teeth is 26. The 4th leg has a usual inner marginal seta on the 1st basal segment. The exopod and endopod are broken off in the specimen.

The 5th pair of legs (fig. j) 3-joined, but the separation between the segments are feeble. The distal segment has rather a feeble inner marginal spine; the apical and outer marginal spines are small. The inner marginal spine is about as long as the distal segment; the outer marginal spine arises opposite to the inner marginal one.

Remarks. The present species resembles *S. valida* FARRAN, but can be easily distinguished from the latter by the presence of spinules at the base of the inner marginal spine of the 1st basal segment of the 2nd leg, and also by the incompletely 3-jointed 5th pair of legs which has a feeble inner marginal spine on the distal segment.

Occurrence. One female from Suruga Bay in the haul 1260-0 m.

Distribution. North-west Pacific (present record).

Scolecithricella timida sp. nov.

(Fig. 148, a-h)

Female. Length, 1.52 mm: cephalothorax, 1.22 mm; abdomen, 0.30 mm. The cephalothorax and abdomen are in the proportional lengths as 80 to 20. The cephalothorax elongate; the oral part dilated laterally. The head fused with the 1st thoracic segment; the 4th segment incompletely fused with the 5th; the line of fusion visible on the middorsal region. The frontal margin of the head evenly rounded (fig. a, b). The lateral margin of the last thoracic segment is slightly produced on the posterior region (fig. c). The rostrum is composed of two robust spines which terminate each in a short pointed filament (fig. d).

The abdomen 4-segmented. The segments and furca are in the proportional lengths as 41, 20, 18, 6, and 15. The genital segment slightly swollen below. The first three segments are finely striated with teeth on the distal border. The furcal rami about as long as wide.

The 1st antenna broken off in the distal segments; the proximal 16 segments are in the following proportions:

Segment	1	2	3	4	5	6	7	8-9	10	11	12	13	14	15	16
	12	10	4.5	4	4.5	4.5	4.5	8	3.5	3	3.5	5	5.5	6.5	7.5

The 2nd antenna has the exopod 1.3 times as long as the endopod. The 1st maxilla has 7 long setae 2 short setae and on the outer lobe, 8 setae on the exopod, 3 setae on the 2nd basal segment, 3 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe. The 2nd maxilla has 5 bud-like and 3 vermiform filaments on the segments of the endopod; the bud-like filaments are moderately large at the distal end. The maxilliped (fig. e) has the 1st basal segment as long as the 2nd.

The 1st leg is provided with an outer edge spine on the 1st segment of the exopod; the 2nd and 3rd segments of the exopod are furnished with rows of

minute spines on the posterior surface; the 1st basal segment has a ridge near the outer distal margin; the 2nd basal has a group of minute spines near the distal border at the base of the endopod (fig. f). The 2nd leg has a long and slightly curved outer edge spine on the 1st segment of the exopod; the 2nd and 3rd segment of the exopod are missing in the specimen. The 1st basal segment has a ridge on the outer distal margin; there is a group of minute spines near the proximal inner margin. The 1st segment of the endopod has a row of minute

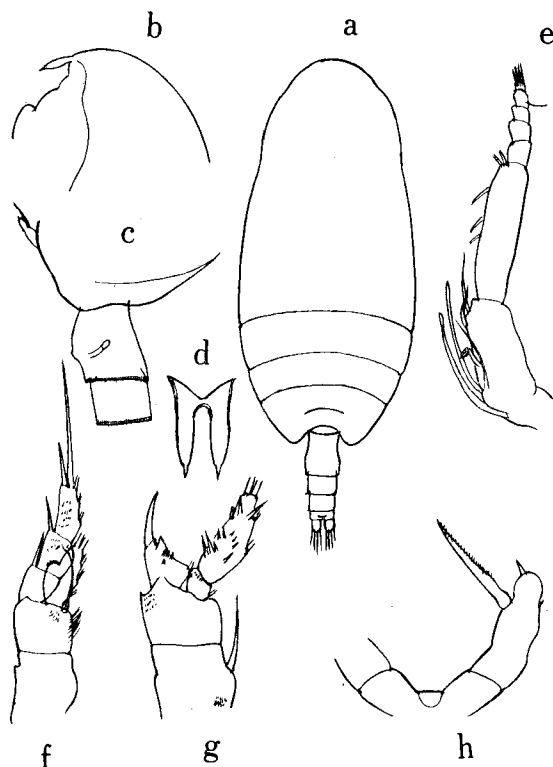


Fig. 148. *Scolecithricella timida* sp. nov.

Female: a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, maxilliped; f, 1st leg; g, 2nd leg; h, 5th leg.

spines on the distal border; the 2nd segment of the endopod is furnished with rows of spinules on the posterior surface (fig. g). In the 3rd leg the 1st basal segment is furnished with groups of minute spines but there is no remarkable one as is found in the foregoing species. The 4th leg missing in the specimen dissected.

The 5th pair of legs (fig. h) 2-jointed, resembles that of *Scolecithrix valens* FARRAN; In the terminal segment the inner marginal spine is about as long as

the distal segment, and arises from the distal 1/3 of the inner margin; the apical spine is short; the outer marginal spine is small, and arises opposite to the inner marginal spine.

Remarks. The specise can be distinguished from any other ones by the its small size, the structure of the rostrum, and by the characteristic shape of the 5th pair of legs.

Occurrence. 2 female from the deep water of Sagami Bay.

Distribution. North-west Pacific (present record).

Scolecithricella denticulata sp. nov.

(Fig. 149, a-h)

Male. Length, 2.82 mm: cephalothorax, 2.07 mm; abdomen, 0.75 mm. The cephalothorax and abdomen are in the proportional lengths as 74 to 26. The cephalothorax robust. The head fused with the 1st thoracic segment. The last two thoracic segments are fused, but in lateal aspect the line of fusion is faintly visible (fig. c). The frontal margin of the head slightly produced (fig. a, b). The lateral corner of the last thoracic segment rounded in lateral aspect. The rostral spine robust, attenuates into fine filament at the distal half (fig. d).

The abdomen 5-segmented; the segments and furca are in proportional lengths as 8, 34, 24, 26, 2, and 6. The 2nd segment swollen distally. The anal segment short, concealed beneath the foregoing. The furcal rami divergent, about as long as wide.

The 1st antenna 19-jointed on the right side, extends to the end of the 2nd abdominal segment. The segments are in the following proportions:

Segment	1	2	3	4	5	6	7	8-9-10-11-12	13	14	15	16	17	18
	68	44	24	26	28	28	28	120	28	28	44	60	64	64
	19	20-21	22	23	24-25									
	60	93	40	76	84	=1,000.								

The segments 1 to 7 have each the following numbers of aesthetaks: 1, 4, 2, 2, 1, and 2.

The 2nd antenna has the exopod 1.5 times as long as the endopod. The 1st maxilla has 9 setae on the outer lobe, 8 setae on the exopod, 7 setae on the endopod, 5 setae on the 2nd basal, 4 setae on the 3rd inner lobe, 2 setae on the 2nd inner lobe. The 2nd maxilla has 3 long vermiform and 5 amalliform filaments on the segments of the endopod; one of the amalliform filaments is much bigger than the rest (fig. e). The maxilliped not characteristic.

In the 1st leg the outer edge spine is found on the 1st segment of the exopod. The 1st and 2nd segments of the endopod are furnished each with rows

of minute spines on the posterior surface (fig. f); the 3rd segment of the exopod 1.5 times as long as the 2nd segment. The 2nd to 4th legs are considerably damaged in the specimen. In the 2nd leg the 2nd basal is furnished with 3 small pointed teeth on the inner margin about the middle; the 1st segment of the exopod has long and curved outer edge spine; the posterior surface of the 1st and 2nd basal segments are covered with minute spines (fig. g). The inner

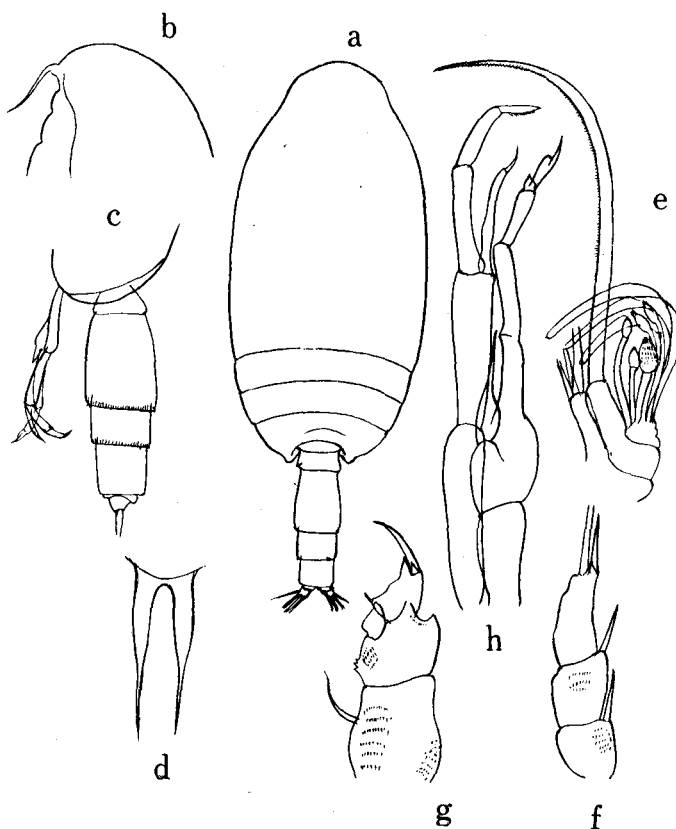


Fig. 149. *Scolecithricella denticulata* sp. nov.

Male: a, dorsal aspect; b, head, lateral aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 2nd maxilla; f, exopod of 1st leg; g, 2nd leg; h, 5th pair of legs.

margin of the 3rd and 4th legs smooth. The inner marginal setae of the 1st basal segment of the 4th leg is small.

The 5th pair of legs exceeds the distal margin of the 3rd abdominal segment when fully reflexed. The endopod of the right leg short and robust. The exopod of the right leg 3-jointed; the 1st joint of the exopod has a triangular process on the inner margin about the middle of the segment; the distal segment is of

peculiar shape as shown in the figure. In the left leg the 3-jointed exopod is longer than the 2-jointed endopod (fig. h).

Remarks. The species can be separated from any other males by the presence of small pointed teeth on the inner margin of the 2nd basal segment, and by the structure of the 5th pair of legs.

Occurrence. One male from Sagami Bay in the haul 1000-0 m.

Distribution. North-west Pacific (present record).

Scolecithricella lanceolata sp. nov.

(Fig. 150, a-i)

Male. Length, 4.07 mm; cephalothorax, 2.82 mm; abdomen, 1.25 mm. The cephalothorax and abdomen are in the proportional lengths as 69 to 31. The head fused with the 1st thoracic segment. The last two thoracic segments are fused. The cephalothorax robust. The postero-lateral corner of the last thoracic segment rounded. The rostrum as in *S. valida* FARRAN; the robust spine terminates in a fine filament at the distal half.

The abdomen 5-segmented; the segments and furca are in the proportional length as 11, 40, 18, 21, 3, and 7. The 2nd segment robust, 1.3 times as long as wide. The 2nd to 4th segments are fringed with fine teeth on the distal border. The furcal rami rather parallel, about as long as wide.

The 1st antenna 20-jointed on the left side, extends to the end of the thoracic segment when reflexed. The segments are in the following proportional lengths:

Segment	1	2	3	4	5	6	7	8-9-10-11-12	13	14	15	16	17	18
	55	49	25	28	28	28	31	124	25	31	43	55	58	55
	19	20	21	22	23	24-25								
	55	43	49	55	80	86	=1,000.							

The segments 20 and 21 are fused on the right side.

In the 2nd antenna the exopod is 1.2 times as long as the endopod. The mandible robust. In the 1st maxilla the outer lobe has 9 setae, the exopod has 9 setae, the 1st inner lobe has 13 setae, the 2nd inner lobe has 2 setae the 3rd inner lobe has 4 setae. The 2nd maxilla well developed; the terminal segments have 3 long vermiform and 4 smalliform filaments; the 5th lobe has a long and powerful spine. The maxilliped has a sensory filament on the middle of the 1st basal segment.

In the 1st leg the outer edge spine on the 1st segment of the exopod is long, reaching the base of the outer edge of the 2nd segment. The 2nd to 4th legs are damaged except the 1st segment of the exopod of the 2nd leg. The

outer edge spine on the 1st segment of the exopod of the 2nd leg is long and curved (fig. f).

The 5th pair of legs reaches back to the end of the 4th abdominal segment. The 2nd and 3rd segments of the exopod of the right leg is of characteristic shape as shown in the figure (fig. h); the endopod of the right leg is fairly long, extends about to the middle of the 1st segment of the exopod (fig. g, i).

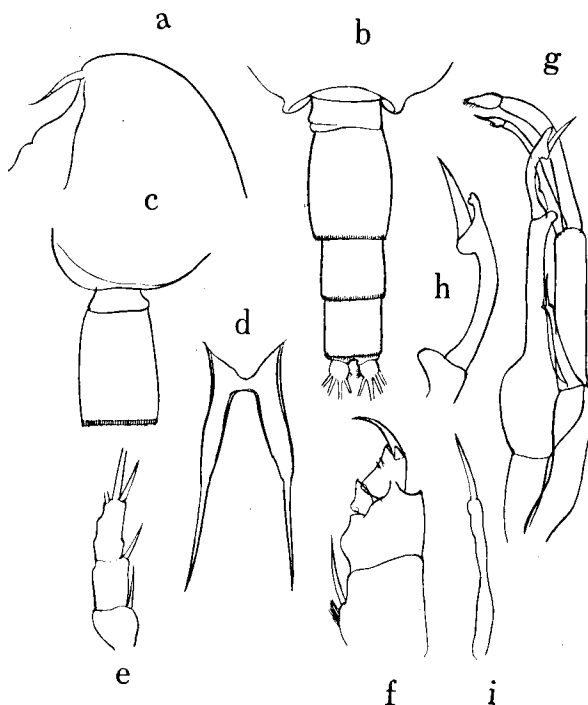


Fig. 150. *Scolecithricella lanceolata* sp. nov.

Male; a, head, lateral aspect; b, abdomen, dorsal aspect; c, last thoracic segment and abdomen, lateral aspect; d, rostrum; e, 2nd leg; f, 5th pair of legs; g, h, terminal segment of exopod of right 5th leg; i, endopod of right 5th leg.

In the left leg the 3-jointed exopod is slightly longer than the 2-jointed endopod.

Remarks. The species resembles the male of *S. valida* FARRAN, but the structure of the 5th pair of legs is quite different in the distal segment of the exopod of the right leg.

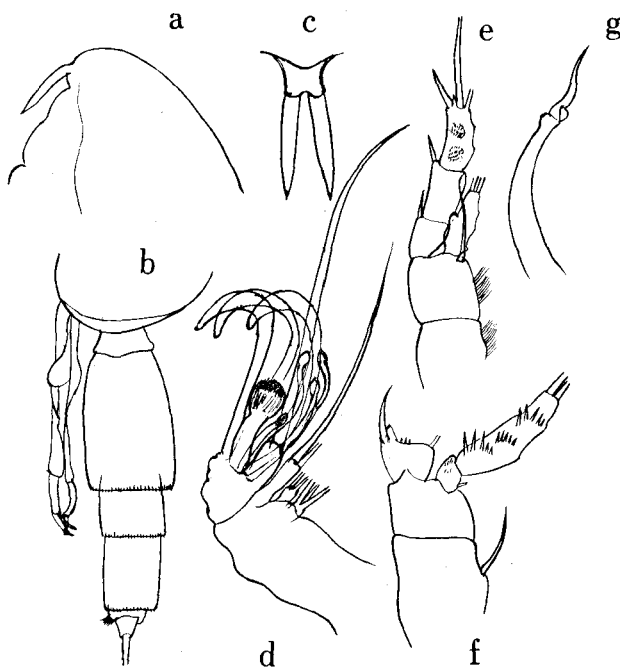
Occurrence. One male from Sagami Bay in the haul 1000-0 m.

Distribution. North-west Pacific (present record).

Scolecithricella sp.

(Fig. 151, a-g)

Male. Length, 2.13 mm; cephalothorax, 1.45 mm; abdomen, 0.68 mm. The cephalothorax ovate and moderately robust. The head fused with the 1st thoracic segment. The last two thoracic segments are fused. The frontal margin of the head slightly produced (fig. a). The lateral corner of the last thoracic segment

Fig. 151. *Scolecithricella* sp.

Male: a, head, lateral aspect; b, last thoracic segment and abdomen, lateral aspect; c, rostrum; d, 2nd maxilla; e, 1st leg; f, 2nd leg; g, endopod of left 5th leg.

rounded (fig. b). The rostrum is composed of a small bifid basal to which robust spines are attached; the spine pointed at the apex (fig. c).

The abdomen 5-segmented. The segments and furca are in the proportional lengths as 10, 39, 17, 25, 3, and 6. The 2nd segment is very robust. The furcal rami as long as wide.

The 1st antenna 20-jointed on the left side, reaches back to the end of the last thoracic segment. The segments are in the following proportional length:

Segment	1	2	3	4	5	6	7	8-9	10-11	12	13	14	15	16	17	18
	82	59	29	29	29	29	29		120		29	29	41	47	47	53
	19	21	21	22	23	24-25										
	53	41	47	47	71	89	=1,000.									

The 2nd antenna has the exopod 1.5 times as long as the endopod. The mandibular palp robust. The 1st maxilla has 5 setae on the outer lobe, 8 setae on the exopod, 5 setae on the endopod 2-3, 3 setae on the endopod 1, 3 setae on the 2nd basal, 2 setae on the 3rd inner lobe. The 2nd maxilla has both amalliform and vermiform filaments on the segments of the endopod; one of the amalliform filament is much larger than the rest (fig. d). The maxilliped not characteristic.

In the 1st leg the 1st and 2nd segments of the exopod have each a slender outer edge spine; the 3rd segment of the exopod has 2 groups of minute spines on the posterior surface (fig. e). The 2nd leg (fig. f) has a moderately long and curved outer edge spine on the 1st segment of the exopod. The 2nd and 3rd segments of the exopod are missing. In the 3rd and 4th legs the endopod are broken off. The 1st basal segment of the 3rd leg is furnished with minute spines on the posterior surface.

The 5th pair of legs reaches back to the distal margin of the 3rd abdominal segment. The exopod of the left leg broken off in the distal segment. The endopod of the right leg is short as shown in the figure. The endopod of the right leg short.

Remarks. The specimen has a general resemblance to the males of foregoing species but differs from them in its small size, in the shape of the rostrum, and also in the 5th pair of legs. I hesitated to give the specimen a new as the specimen was considerably damaged.

Occurrence. One male specimen from Suruga Bay in the haul 1000-0 m.